

***SMALL BUSINESS INNOVATION RESEARCH PROGRAM***

**JOINT-AGENCY SOLICITATION  
for  
EDUCATION TECHNOLOGY GAMES**

**PARTICIPATING FEDERAL AGENCIES:**

**U.S. Department of Education, Institute of Education Sciences (ED/IES)**

**Defense Advanced Research Projects Agency (DARPA)**

**REQUEST FOR PROPOSALS  
PHASE I - Games  
ED RFP Number: ED-IES-13-R-0008**

**ISSUE DATE: December 20, 2012**

**CLOSING DATE: February 5, 2013**

**2:00 P.M., Eastern Time (ET)**

**EDUCATION TECHNOLOGY GAMES**

**TOPICS**

Topic 1: R/R&D of games for statistics and probability (ED/IES)

Topic 2: R/R&D of games for English learners (ED/IES)

Topic 3: R/R&D of neuroplastic games for foreign language learning (DARPA)

Topic 4: R/R&D of a hybrid videogame/graphic novel to support computer science education (DARPA)

**Additional SBIR Funding Opportunities for R/R&D of Education Technology Games**

- The SBIR program at the National Science Foundation accepts applications for the development of games through its education games topic area. For more information, [see here](#).
- The SBIR program at the National Institutes of Health, using the Funding Opportunity Announcement [PA-12-088](#), has identified an interest in serious games for science education. For more information, [stay tuned here](#).
- A separate SBIR solicitation released by the Department of Education's Institute of Education Sciences' requests Phase I and Fast-Track proposals for the development of technology products (including games) in education and special education. This solicitation (ED-IES-13-R-0007) [is currently available here](#).

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## I. PROGRAM OVERVIEW

### A. Introduction

The purpose of the Small Business Innovation Research (SBIR) program is to stimulate technological innovation in the private sector, strengthen the role of small business in meeting research and development needs, increase the commercial potential of Federally-supported research results, and improve the return on investment from Federally-funded research for economic and social benefits to the Nation.

The topic of “game-based learning” is gaining considerable attention as more and more young people are learning from games outside of school and more and more teachers are leveraging the power of games to engage students in school. Well-designed games can motivate students to actively engage in meaningful and challenging tasks, to learn content, and sharpen critical-thinking and problem-solving skills. Education gaming experts have identified some of the key features of games that may have the greatest potential to impact student learning. These features include: exciting narratives and video-game quality graphics that motivate and engage students, challenging discovery-based tasks, adaptive supports that adjust to and support individual learners, formative assessment, multiplayer functionality, and competition and rewards. With the advent of modern web-based delivery mechanisms (e.g., handheld personal digital assistants, tablet personal computers) games are now available to users anytime and anywhere. Thus, the momentum for games is likely to continue.

The Department of Education’s Institute of Education Sciences (ED/IES) and the Defense Advanced Research Projects Agency (DARPA) invite qualified small business firms to submit a Phase I proposal under this program solicitation focused on education technology games to improve student learning and outcomes listed within. Firms with strong research or research and development (R/R&D) capabilities in education technology games in the topic areas listed within are invited to submit proposals. Consultative or other arrangements between such firms and universities or other non-profit organizations are permitted, but the small business must serve as the contractor.<sup>1</sup>

### B. SBIR Program Description

The SBIR program consists of three phases, as described below. The current solicitation is for submitting a Phase I proposal in 2013 **to either ED/IES or to DARPA.**

Phase I – Phase I is to determine, insofar as possible, the scientific or technical merit of ideas submitted under the SBIR program. The proposal should concentrate on R/R&D that will establish the usability of a prototype and initial feasibility of the concept, a prerequisite for further support in Phase II.

Phase II – Phase II is to expand on the results of and to further pursue the development of Phase I projects. Phase II is the principal R/R&D effort. It requires a more comprehensive plan that outlines the effort in detail and describes the commercial potential of the game.

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<sup>1</sup> Note: Such arrangements may be permitted as long as they do not affect the small business size, status, or eligibility of the prime awardee as provided for in Definitions – “Small Business Concern.”

**Phase III** – In Phase III, the small business uses non-SBIR capital to pursue commercial proposals of the R/R&D.

Both the Phase I and Phase II award may include a reasonable profit/fee.

Firms awarded Phase I contracts will be eligible to submit proposals for participation in Phase II (and Phase III). Phase II proposal preparation and submission information will be provided by the participating SBIR agencies during or after the end of the Phase I period. For Phase II, unsolicited proposals will not be accepted.

**NOTES:**

- At ED/IES, there is no Fast-Track (Phase II option) in conjunction with this Fiscal Year 2013 Phase I SBIR program in education technology games.
- At DARPA, this Phase I solicitation is only for proposals for SBIR awards – not for the Small Business Technology Transfer (STTR) program.

**C. Authorization**

The “Small Business Reauthorization Act of 2011” (the “Act”) was enacted on December 31, 2011. The Act requires certain agencies, including ED and DARPA, to establish SBIR programs by reserving a statutory percentage of their extramural research and development budgets to be awarded to small business concerns for R/R&D through a uniform, highly competitive, three-phase process. The Act further requires the Small Business Administration (SBA) to issue policy directives for the general conduct of the SBIR programs within the Federal Government. The Small Business Innovation Research Policy Directive Notice was published in the “Federal Register” Vol. 77, No. 151 on Monday, August 6, 2012. It is also available at: <https://www.federalregister.gov/articles/2012/08/06/2012-18119/small-business-innovation-research-program-policy-directive>. The SBIR policy directive guides the information and requirements set forth in this proposal package.

**D. Offeror Eligibility**

Each organization submitting a proposal must qualify as a small business concern as defined by the SBA at the time of the proposal award. The definition of a small business concern is included in Section II. In addition, the primary employment of the principal investigator must be with the small business firm at the time of award and during the conduct of the proposed research. That is, more than one-half of the principal investigator’s working time must be spent with the small business firm during the period of performance. Also, for both Phase I and Phase II the R/R&D work must be performed in the United States. The definition of “United States” is included in Section II.

Joint ventures and limited partnerships are permitted, provided that the business entity created qualifies as a small business in accordance with the Small Business Act, 15 U.S.C. 631. For Phase I, the proposing firm must perform at least two-thirds of the research and/or analytic effort. Furthermore, the total of all consultant fees, facility leases or usage fees, and other subcontracts or purchase agreements may not exceed one-third of the total contract price. For Phase II, the proposing firm must perform at least one-half of the research and/or analytic effort. Furthermore, the total of all consultant fees, facility leases or usage fees, and other subcontracts or purchase agreements may not exceed one-half of the total contract price.

Participating SBIR agencies staff will examine all proposals to their agency with the above considerations in mind. If it appears that an offeror organization does not meet the eligibility requirements, participating SBIR agencies will request an evaluation by the SBA. Under circumstances in which eligibility is unclear, participating SBIR agencies will not make an SBIR award until the SBA provides a determination.

**E. Conflicts of Interest**

Awards made to firms owned by or employing current or previous Federal Government employees could create conflicts of interest for those employees, which may be a violation of federal law. Such proposers should contact the cognizant Ethics Counselor from the employees' Government agency for further guidance.

**F. Proposal Limitations**

A proposal must be relevant and appropriate to one of the topics listed in Section IX. of this program solicitation. There is no limitation on the number of different proposals an offeror may submit under this competition to each participating SBIR agency. However, additional packages with duplicate proposals will not be reviewed.

**G. Timing of Phase I Awards**

ED/IES and DARPA expect to announce awards within six months after the submission deadline. All offerors shall receive notification and reviewer evaluations after the announcement.

**H. Important Notice**

Participating SBIR agencies are under no obligation to fund any specific proposal or make any specific number of awards in a given research priority area. Participating SBIR agencies are not responsible for any monies expended by an offeror before an award.

**I. Executive Order 13329: Manufacturing-Related Innovation**

Executive Order 13329 states that continued technological innovation is critical to a strong manufacturing sector of the United States economy. The participating agency SBIR programs encourage innovative manufacturing-related projects, as defined by the Executive Order.

**J. Report Fraud, Waste and Abuse**

The Office of Inspector General Hotline at the U.S. Department of Education accepts tips from all sources about potential fraud, waste, abuse and mismanagement in Department of Education programs. The reporting individual should indicate that the fraud, waste and/or abuse concerns an SBIR grant or contract, if relevant.

<http://www2.ed.gov/about/offices/list/oig/hotline.html>

The Department of Defense (DoD), Office of Inspector General Hotline ("Defense Hotline") is an important avenue for reporting fraud, waste, abuse, and mismanagement within the Department of Defense. The Office of Inspector General operates this hotline to receive and investigate complaints or information from contractor employees, DoD civilians, military service members and public citizens. Individuals who wish to report fraud, waste or abuse may contact the Defense Hotline at (800) 424-9098 between 8:00 AM and 5:00 PM Eastern Time or visit [http://www.dodig.mil/hotline/submit\\_complaint.htm](http://www.dodig.mil/hotline/submit_complaint.htm) to submit a complaint. Mailed correspondence should be addressed to the Defense Hotline, The Pentagon, Washington, DC 20301-1900 or e-mail addressed to [hotline@dodig.mil](mailto:hotline@dodig.mil).

## **II. DEFINITIONS**

The Small Business Administration (SBA) developed the following definitions relevant to the Small Business Innovation Research (SBIR) Program.

### **A. Affiliate**

This term has the same meaning as set forth in 13 CFR Part 121 - Small Business Size Regulations, §121.103.

### **B. Awardee**

The Small Business Concern (SBC) receiving an SBIR contract.

### **C. Commercialization**

The process of developing marketable products, and producing and delivering products for sale (whether by the originating party or by others) to Government and/or commercial markets.

### **D. Contract**

An award instrument establishing a binding legal procurement relationship between a funding agency and the recipient, obligating the latter to furnish an end product, tool, or service and binding the agency to provide payment therefore.

### **E. Essentially Equivalent Work**

The "scientific overlap," which occurs when (1) substantially the same research is proposed for funding in more than one contract proposal or grant proposal submitted to the same Federal agency; (2) substantially the same research is submitted to two or more different Federal agencies for review and funding consideration; or (3) a specific research objective and the research design for accomplishing an objective are the same or closely related in two or more proposals or awards, regardless of the funding source.

### **F. Extramural Budget**

The sum of the total obligations for R/R&D minus amounts obligated for R/R&D activities by employees of a Federal agency in or through Government-owned, Government-operated facilities.

### **G. Feasibility**

The extent to which the product (or prototype if during Phase I) operates or functions as intended when used by the intended end-user.

### **H. Foreign National (also known as Foreign Persons) means any person who is NOT:**

- a. a citizen or national of the United States; or
- b. a lawful permanent resident; or
- c. a protected individual as defined by 8 U.S.C. § 1324b(a)(3).

"Lawful permanent resident" is a person having the status of having been lawfully accorded the privilege of residing permanently in the United States as an immigrant in accordance with the immigration laws and such status not having changed.



"Protected individual" is an alien who is lawfully admitted for permanent residence, is granted the status of an alien lawfully admitted for temporary residence under 8 U.S.C. § 1160(a) or 8 U.S.C. § 1255a(a)(1), is admitted as a refugee under 8 U.S.C. § 1157, or is granted asylum under Section 8 U.S.C. § 1158; but does not include (i) an alien who fails to apply for naturalization within six months of the date the alien first becomes eligible (by virtue of period of lawful permanent residence) to apply for naturalization or, if later, within six months after November 6, 1986, and (ii) an alien who has applied on a timely basis, but has not been naturalized as a citizen within 2 years after the date of the application, unless the alien can establish that the alien is actively pursuing naturalization, except that time consumed in the Service's processing the application shall not be counted toward the 2-year period.

**I. Funding Agreement**

Any contract, grant, or cooperative agreement entered into between any Federal agency and any SBC for the performance of experimental, developmental, or research work, including products, tools, or services, funded in whole or in part by the Federal Government.

**J. Historically Underutilized Business Zone (HUBZone)**

An SBC meeting the following criteria:

- Located in a "historically underutilized business zone" or HUBZone area located in one or more of the following:
  - A qualified census tract (as defined in section 42(d)(5)(C)(i)(I) of the Internal Revenue Code of 1986);
  - A qualified "non-metropolitan county" (as defined in section 143(k)(2)(B) of the Internal Revenue Code of 1986) with a median household income of less than 80 percent of the State median household income or with an unemployment rate of not less than 140 percent of the Statewide average, based on US Department of Labor recent data; or
  - Lands within the boundaries of federally recognized Indian reservations.
- Owned and controlled by one or more US Citizens; and
- At least 35% of its employees must reside in a HUBZone.

**K. Innovation**

Something new or improved, having marketable potential, including (1) development of new technologies, (2) refinement of existing technologies, or (3) development of new proposals for existing technologies.

**L. Intellectual Property**

The separate and distinct types of intangible property that are referred to collectively as "intellectual property," including but not limited to: patents, trademarks, copyrights, trade secrets, SBIR technical data (as defined in this section), ideas, designs, know-how, business, technical and research methods, and other types of intangible business assets, and including all types of intangible assets either proposed or generated by an SBC as a result of its participation in the SBIR Program.

**M. Joint Venture**

An association of persons or concerns with interests in any degree or proportion by way of contract, express or implied, consorting to engage in and carry out a single specific business venture for joint profit, for which purpose they combine their efforts, property, money, skill, or

knowledge but not on a continuing or permanent basis for conducting business generally. A joint venture is viewed as a business entity in determining power to control its management, has its own Employer Identification Number as assigned by the Internal Revenue Service, and is eligible under the SBIR Program provided that the entity created qualifies as a "SBC" as defined in this section.

**N. Key Personnel**

In addition to the principal investigator, Key Personnel are defined as individuals who contribute to the scientific development or execution of the project in a substantive, measurable way, whether or not salaries are requested. Typically, these individuals have doctoral or other professional degrees, although individuals at the masters or baccalaureate level should be included if their involvement meets the definition of Key Personnel. Consultants should also be included if they meet the definition of Key Personnel. Key Personnel must devote measurable effort to the project whether or not salaries are requested - "zero percent" effort or "as needed" are not acceptable levels for those designated as Key Personnel.

**O. Manufacturing (Executive Order 13329)**

Executive Order 13329 ensures that Federal agencies assist the private sector in its manufacturing innovation efforts. Manufacturing-related R/R&D encompasses improvements in existing methods or processes, or wholly new processes, machines, or systems. Broadly speaking, ED's SBIR program encourages R/R&D in manufacturing through systems-level technology development. These projects encompass a range of topics, such as artificial intelligence, IT devices, software, delivery systems, rehabilitation technology, assistive technology and devices, and product or tool design. It is likely that some products or tools funded under this solicitation will be manufactured (e.g., large-scale production) after the Phase II R/R&D is completed.

**P. Offeror**

The organizational entity that, at the time of award, will qualify as a Small Business Concern (SBC) and submits a contract proposal for a funding agreement under the SBIR Program.

**Q. Other Significant Contributors**

This category identifies individuals who have committed to contribute to the scientific development or execution of the project, but are not committing any specified measurable effort to the projects. These individuals are typically presented at "zero percent" effort or "as needed" (individuals with measurable effort cannot be listed as Other Significant Contributors). Consultants should be included if they meet this definition.

**R. Principal Investigator/Project Manager**

The one individual designated by the offeror to provide the scientific and technical direction to the project that will be supported by the contract.

**S. Prototype**

A model of something to be further developed, and may include designs, protocols, questionnaires, software, and devices.

**T. Research or Research and Development (R/R&D)**

Any activity that is:

- A systematic, intensive study directed toward greater knowledge or understanding of the subject studied;
- A systematic study directed specifically toward applying new knowledge to meet a recognized need; or
- A systematic proposal of knowledge toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements.

**U. Research or Research and Development**

Any activity that is:

- Basic Research – Scientific study and experimentation to provide fundamental knowledge required for the solution of problems.
- Exploratory Development – A study, investigation or minor development effort directed toward specific problem areas with a view toward developing and evaluating the feasibility and practicability of proposed solutions.
- Advanced Development – Proof of design efforts directed toward projects that have moved into the development of hardware for test.
- Engineering Development – Full-scale engineering development projects for DoD use but which have not yet received approval for production.

For the purposes of Human Research Protection, “research” is defined as a systematic investigation including RDT&E, designed to develop generalizable knowledge (32 C.F.R. § 219).

**V. SBIR Technical Data**

All data generated in the performance of any SBIR funding agreement.

**W. SBIR Technical Data Rights**

The rights an SBC obtains in data generated in the performance of any SBIR funding agreement that an awardee delivers to the Government during or upon completion of a Federally-funded project, and to which the Government receives a license. (See FAR 52.277-20, Rights in data – SBIR program.)

**X. Small Business Concern**

A small business concern is one that, at the time of award of Phase I and Phase II, meets all of the criteria established by the Small Business Administration which are published in 13 C.F.R § 121.701-705.

**Y. Socially and Economically Disadvantaged Individual**

A member of any of the following groups:

- Black Americans;
- Hispanic Americans;
- Native Americans;
- Asian Pacific Americans
- Subcontinent Asian Americans;
- Other groups designated from time to time by SBA to be socially disadvantaged; or any other individual found to be socially and economically disadvantaged by SBA pursuant to Section 8(a) of the Small Business Act, 15 U.S. C. 637(a).

**Z. Subcontract**

Any agreement, other than one involving an employer/employee relationship, entered into by an awardee of a contract calling for supplies or services required solely for the performance of the original contract. For Phase I, the proposing firm must perform at least two-thirds of the R/R&D. For Phase II, the proposing firm must perform at least one-half of the R/R&D.

**AA. United States**

Means the 50 states, the territories and possessions of the Federal Government, the Commonwealth of Puerto Rico, the District of Columbia, the Republic of the Marshall Islands, the Federated States of Micronesia, and the Republic of Palau.

**BB. Woman-Owned Small Business Concern**

A small business concern that is at least 51 percent owned and operated by a woman or women who also control and operate it. "Control" in this context means exercising the power to make policy decisions. "Operate" in this context means being actively involved in the day-to-day management.

### **III. CONTRACT PROPOSAL PREPARATION INSTRUCTIONS AND REQUIREMENTS**

#### **A. Proposal Requirements**

The participating SBIR agencies are concerned with the scientific and technical merit of all of the research supported and the relevance of the research for improving student outcomes. Proposals in response to this SBIR solicitation should present a sound scientific and technical approach to the R/R&D of an education technology game for the purpose of improving student or other user learning outcomes within the areas described in "[Section IX. Topics.](#)"

The proposal must be self-contained and written with the care and thoroughness accorded to papers for publication. The proposal should serve as the base for new commercial education technology games that may benefit the public. A firm must not propose market research, patent proposals, or litigation. Proposals for the development of proven concepts toward commercialization or for market research should not be submitted because such efforts are considered the responsibility of the private sector.

#### **B. Protection of Information in Proposals**

It is the government's policy to use information included in proposals for evaluation purposes only and to protect such information from unauthorized use or disclosure. Although this policy does not require that the proposal bear a notice, protection can be assured only to the extent that the legend specified in the "Rights in Data – SBIR Program" is applied to those data that constitute trade secrets or to other commercial or financial information that is confidential or privileged. Other information may be afforded protection to the extent permitted by law, but the agencies represented in this solicitation assume no liability for use and disclosure of information to which the legend has not been appropriately applied.

#### **C. Content and Formatting Requirements**

This Phase I program solicitation is designed to reduce the investment of time and money required by small firms in preparing a proposal. *The proposal will be rejected if it does not conform to the requirements listed below.*

##### **1. What to Include, Page Limitations, and Page Numbering**

###### **a. Section III.E. Proposal Front Page**

Proposals must include a Front Page with the information described below.

###### **b. Section III.F. Project Narrative – Technical Content**

Proposals must include a Project Narrative – Technical Content section of no more than 15 pages in length. Pages should be numbered consecutively beginning with the first page of this section numbered as "1." Any references, figures, charts, graphs, tables, or screen shots must be included within this 15-page section.

###### **c. Section X. Appendices**

Proposals to ED/IES must include the required information in Appendix Section X.1

Proposals to DARPA must include the required information in Appendix Section X.2.

**D. Phase I Proposal Guidance**

To avoid any misunderstanding, offerors should be aware that proposals not satisfying all the required instructions will be returned to the proposing organization without review. Returned proposals may not be resubmitted with or without revision under this program solicitation.

**2. For ED/IES SBIR Proposals Only:**

**Contractor Registration**

Before ED can award a contract to a successful offeror under this solicitation, the offeror must be registered in the System for Award Management (SAM) database. The SAM website allows Federal Government contractors or firms interested in conducting business with the Federal Government to provide basic information on business capabilities and financial information. The Online Representations and Certifications (ORCA) site located at <http://orca.bpn.gov> has been relocated to SAM. Offerors are required to register and input their Representations and Certifications in <https://www.sam.gov/>. Please contact the SAM site directly for technical support. ED does not provide technical support for SAM. Offerors that do not have a current registration in SAM.gov at the time of award will be excluded from the competition.

- To register in SAM, go to <http://www.sam.gov>.

**Contractor Certifications**

In addition to registering in SAM, offerors must complete the certifications contained in Appendix H of this document. Offers submitted without completed Appendix H certifications are not eligible for award. Offerors shall submit one copy of the completed certifications with the proposal. This should be a separate document from the proposal and will not be counted as part of the page limit for Section III. F. Project Narrative – Technical Content.

**2. For DARPA SBIR Proposals Only:**

**Contractor Registration and Certifications**

In order to receive a contract award, you must be registered in the System for Award Management (SAM). SAM replaced the Central Contractor Registration (CCR), Online Representations and Certifications Application (ORCA), and the Excluded Parties List System (EPLS). SAM allows firms interested in conducting business with the federal government to provide basic information on business capabilities and financial information. To register, visit <http://www.sam.gov>.

Follow instructions found on the SAM Web site on how to obtain a Commercial and Government Entry (CAGE) code and Data Universal Numbering System (DUNS) number. Once you have a CAGE code and DUNS number, update your firm profile on the DoD Submission Web site at [www.dodsbir.net/submission](http://www.dodsbir.net/submission) to automatically print these on your future proposals to expedite the award process.

### **E. Proposal Front Page (for all proposals)**

*The following information must be provided as the front page for the proposal.*

1. **Name of the Small Business Concern:**
2. **Project Title:**
3. **Topic Area:** Select one (not more than one) priority area. See Section IX. for additional information on the Priority Areas.
  - Topic 1: R/R&D of games for statistics and probability (IES/ED)
  - Topic 2: R/R&D of games for English learners (IES/ED)
  - Topic 3: R/R&D of neuroplastic games for foreign language learning (DARPA)
  - Topic 4: R/R&D of a hybrid videogame/graphic novel to support computer science education (DARPA)
4. **Abstract:** The offeror must provide an abstract with the below two components. *Nothing in this section should be proprietary or confidential.*
  - i. Technical abstract limited to 200 words.
  - ii. A summary of the commercial potential of the game if development were completed as described above limited to 100 words.

#### **NOTES:**

- Offerors are permitted to submit different and multiple proposals to one or more topic areas.
- Offerors are not permitted to respond to multiple priority areas in one proposal.
- No other pages are permitted to precede the Front Page.
- Instructions for providing all other required and key information for the proposals is detailed in [Appendix X.1 for ED/IES SBIR](#) and [Appendix X.2 for DARPA SBIR](#).

### **F. Project Narrative – Technical Content**

*NOTE: The project narrative constitutes the main body of the Phase I proposal for all proposals to ED/IES SBIR and DARPA SBIR. The project narrative must be titled "Project Narrative – Technical Content" and shall begin on page "3".*

#### **1. Significance**

##### **a. Problem**

Describe the education problem that the proposed game is intended to address and justify the importance of investing in R/R&D to solve this problem.

##### **b. The game, its implementation, and the intended outcomes**

Describe the game that would be developed in Phase I and Phase II. Specify the intended user of this game (e.g., high school students taking statistics and probability, English learners with or at risk for disabilities, students in a middle school computer science class). Describe the critical components of this game and any additional materials required to support implementation (e.g., handbooks, instructional modules). Describe how this game will function once completed.

Describe how this game would be implemented in the intended education setting<sup>2</sup> (e.g., classroom, supplemental education service, homes of children with or at risk for disability). For example, would this game replace, supplement, or be integrated within existing practice as an

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<sup>2</sup> The term "education setting" refers different settings depending on the specific Topic area. Offerors should consult [Section IX. Topics](#) for more specifications.

intervention, or would it alter instructional approaches? Describe the expected level of resources and why this game's implementation will be feasible for users given their resource constraints (e.g., time, funds, schedules).

Specify the intended outcomes that would come from using this game (i.e., improve learning in statistics and probability, improve student's "ear" for foreign languages, improve comprehension for English learners, improve skills in computer science).

**c. The theory of change, and theoretical and empirical support**

Describe the theory of change for the proposed game. The theory of change details the process through which the key components of this game are expected to lead to the desired outcomes. The theory of change describes the relation between the game and the outcome measures (e.g., the proposed measures tap the constructs that the game is intended to address). Logic models are often used to illustrate the theory of change.

Describe the theoretical justifications supporting the theory of change (i.e., describe how the game is grounded and supported by theory) and provide empirical evidence supporting the theory of change (i.e., use data from past studies to show that the proposed game or its components can be expected to have the intended outcomes).

**d. Related R/R&D by the project team**

Describe significant R/R&D conducted by the project team members or by the proposing small business that is directly related to the proposal. Describe relevant results from this research. Describe how previous R/R&D relates to and provides a foundation for the proposed effort.

**e. Similar products or typical practices**

Describe similar games or current typical practices in the proposed area. Include a description of the relevant research that is available on these games or practices. Describe why the proposed game will be sufficiently different from and better than current games or practices. In doing so describe shortcomings of the current games or practices and why the proposed game will not suffer from the same shortcomings.

**f. Potential commercial application**

**For ED SBIR Proposals Only**

Describe the potential commercial application of the game after Phase I and Phase II R/R&D, and why the game has potential to be widely disseminated and utilized.

**For DARPA SBIR Proposals Only**

Describe in approximately one page your company's preliminary strategy for commercializing this technology in DoD, other Federal Agencies, and/or private sector markets. Provide specific information on the market need the technology will address and the size of the market.

**NOTE:** Offerors to ED/IES and DARPA may provide up to three (3) letters to endorse the significance and the potential commercial application of the proposed game in [Appendix F](#). See [Appendix F for ED/IES](#) and [Appendix F for DARPA](#) further information.

**2. Phase I Technical Objectives**

**a. Phase I R/R&D objectives**



State the specific objectives of the Phase I R/R&D effort. Clearly identify each of the critical components of the prototype that will be developed in Phase I and what work will be completed in order to have a fully functioning prototype. The Phase I R/R&D objectives should include activities to test the usability of the prototype and the initial feasibility of the game concept with the intended end-user.

**b. Project period**

Explain how the proposed objectives will be accomplished within a 6-month period. A timeline should be included.

**3. Phase I Work Plan**

Offerors should provide a detailed plan of the technological R/R&D activities that will occur in Phase I, including what will be done, where it will be done, and how it will be carried out. The Phase I R/R&D plan should address the objectives detailed in Section III.F.2. (Phase I Technical Objectives). Offerors should make clear how the work plan addresses each of the objectives.

**a. Development of the prototype**

As part of the plan, offerors should describe the R/R&D procedures through which a prototype will be developed and fully functioning (e.g., usability). Offerors should also describe the procedures that will be used to test and refine the prototype. For such research, offerors should describe how and when data will be collected, the characteristics of the sample (e.g., students, students with or at risk for disabilities), and the procedures for analyzing data.

**b. Research on the usability of the prototype and the initial feasibility of the game concept**

At the end of the Phase I period, offerors should describe the research process that will be used to demonstrate the usability (or functioning) of the prototype when it is used by the anticipated end user (e.g., student), and to assess the initial feasibility of the game concept after being presented to end users.

Such research might involve conducting a small pilot test of the prototype being used in a classroom to determine the prototype functions in the way that it is intended (usability), and whether users are attentive and engaged when they use the prototype in the context of understanding the game concept (initial feasibility). Offerors might also include a think-aloud study in which a small sample of intended end-users provide feedback on what they are thinking as they use the prototype and see additional plans for the fully developed game. Such studies can help developers, for example, identify instructions that are not clear, determine if users will click on links to obtain additional information, detect trouble spots that users have difficulty navigating, or determine if the game concept makes sense in relation to the Phase I prototype. Pilot studies should include a small sample of individuals who are like those for whom the fully developed game is intended.

To describe the usability and initial feasibility research, offerors should include the following details:

*Research questions.* Offerors should pose clear, concise hypotheses or research questions (e.g., Does the prototype function as intended? Are users able to follow the instructions for using the prototype? Are users engaged in the material when using the prototype or when viewing the

full game concept? After testing the prototype and seeing plans for the full development of the game, do users feel the game has potential for improving outcomes?).

*Sample.* Describe the population (e.g., students, children with or at risk for disabilities) and the setting (e.g., laboratory, school) that will be used in the R/R&D activities to develop the prototype and to assess the usability and initial feasibility of the prototype.

**NOTE:** *Offerors must include one letter of agreement from an education setting for participation in research should the proposal be awarded. This letter should be no longer than one (1) page, and is to be included in Appendix D for both ED/IES and DARPA.*

*Measures.* Describe the measures that will be used in this research and where appropriate, include information on reliability and validity of instruments.

*Procedures.* Describe when and how data will be collected to determine the usability and initial feasibility of the prototype. Include a clear and detailed description of the data analysis procedures. For quantitative data, specific statistical procedures should be described. The relation between hypotheses, and the independent and dependent measures should be clear. For qualitative data, the specific methods used to index, summarize, and interpret data should be delineated.

In concluding this section, offerors should discuss how the Phase I R/R&D will provide a foundation for the Phase II R/R&D effort.

#### **c. Potential Problems**

Describe any potential problem areas that are anticipated in Phase I and provide alternative strategies that would be considered in such circumstances.

#### **4. Project Team – Biographical Summary of Each Key Project Personnel**

The project team should have expertise in the specialized topic areas within this solicitation, including technology R/R&D, education theory and practice in the specific game topic area of focus, research, research methods for the development and evaluation of technology (including experience performing research in the intended delivery settings), and in the commercial application of education gaming or technology-related products. In addition, participating SBIR agencies strongly encourage offerors interested in applying to this program to assemble research teams that collectively have expertise in the development of advanced technology (e.g., artificial intelligence capabilities), instructional design, and the targeted content domain (e.g., foreign language, English learners, statistics and probability, computer science).

In the summary of the principal investigator, describe relevant educational qualifications and experience. List all other commitments that the principal investigator has during the proposed period of performance. Describe why this individual is capable of managing the proposed project. In the summary of each of the remaining key personnel, describe the role of each individual in the project, and describe relevant educational qualifications and experience.

**Foreign Citizens.** Identify any foreign citizens you expect to be involved on this project as a direct employee, subcontractor or consultant. For these individuals, please specify their country of origin, the type of visa or work permit under which they are performing and an explanation of their anticipated level of involvement on this project. You may be asked to provide additional

information during negotiations in order to verify the foreign citizen's eligibility to participate on a SBIR contract. Supplemental information provided in response to this paragraph will be protected in accordance with the Privacy Act (5 U.S.C. 552a), if applicable, and the Freedom of Information Act (5 U.S.C. 552(b)(6)).

***NOTE: While biographical summaries must be included within the 15-pages, Appendix C must also include two certifications (for ED/IES only) and a 1-page resumé for each of the key personnel listed above in 4. Project Team.***

#### **5. Resources**

The conduct of advanced R/R&D may require the use of sophisticated instrumentation or computer facilities. The offeror must describe the adequacy of available support, including facilities, equipment, supplies, and other resources, from the proposing firm and from sub-contractors to carry out necessary Phase I R/R&D.

#### **IV. METHOD OF SELECTION AND EVALUATION CRITERIA**

##### **Introduction**

The goal of agency-funded R/R&D through this SBIR solicitation is to contribute to the solution of education problems and to provide reliable information about the promise of games for improving learning outcomes. Reviewers will assess several aspects of the proposal in order to judge the likelihood that the proposed R/R&D will meet this goal. In the evaluation and handling of proposals, participating ED/IES SBIR and DARPA SBIR will make every effort to protect the confidentiality of the proposal and any reviews of the proposal.

All Phase I proposals will be evaluated and judged on a competitive basis solely against the evaluation criteria. Proposals will be initially screened to determine responsiveness. Proposals passing this initial screening will be technically evaluated to determine the most promising approaches. Each proposal will be judged on its own merit. Participating SBIR agencies are under no obligation to fund any proposal or any specific number of proposals in a given priority area.

##### **1. Method of Selection and Evaluation Criteria for ED/IES SBIR Proposals**

##### **Pre-Review Screening**

All Phase I proposals will proceed through a pre-review screening to determine responsiveness to the specific requirements of the solicitation. If the answer to any of the following questions is "NO," the proposal will be returned to the offeror without review or further consideration.

- Does the proposal contain all of the information required under Appendix X.1?
- Is the project narrative of the proposal 15-pages or less in length, excluding the Front Page and the Appendices?
- In Appendix C, is there a certification page and a 1-page resumé for each individual listed on the project personnel team, signed by the proposed employee and by someone with the authority to bind the company?
- In Appendix G, is there a Phase I narrative budget justification and budget spreadsheet?
- In Appendix H, is the required contract information included?

Any deviations from the proposal instructions will lead to a proposal being rejected.

##### **Technical Evaluation Review Panels**

The evaluation review process is as follows:

- Phase I Technical Evaluation Review Panels will consist of three reviewers from the Department of Education and other Federal government agencies, including education research scientists and technology experts. Reviewers will review proposals and complete written evaluations by identifying strengths and weaknesses for each of the evaluation criteria (listed below under D).
- Reviewers will assign scores based on the below evaluation criteria, with the maximum number of points for each criteria listed in parentheses.
- Scores on each of the four criteria will be summed (for a maximum of 100 points).
- Proposals from all of the Phase I Technical Evaluation Review Panels will be ranked in order from highest average score out of 100 to lowest average score, with the top scores recommended for funding based on the availability of funds.
- Staff from ED's Contracts and Acquisition Management office will evaluate business-related aspects of proposals. The final award decision is made by the Contracting

Officer, informed, but in no way obligated, by the recommendation of the technical evaluators.

**Evaluation Criteria – Phase I**

Each Phase I games proposal will be evaluated according to the (1) Significance, (2) Phase I Work Plan, and (3) Project Team, Company/Resources, and Budget. Details are described in the sections below.

**a. Significance (40 points)**

- Did the offeror justify the importance of solving the education problem that the game will address? Is compelling evidence provided to support the claim that the proposed game is likely to contribute to solving this problem?
- Did the offeror clearly describe the game – its critical components and any additional materials required to support its implementation – to be developed as a result of the Phase I and Phase II R/R&D? Did the offeror clearly identify the intended user of the proposed game? Did the offeror clearly describe how the game is intended to function, how it would be implemented in a delivery setting, and whether there will be resources for such implementation? Is there a clear description of the intended outcomes from using the game?
- Is the theory of change logical and plausible? Do the theoretical and empirical foundations for the project suggest that the game is likely to produce the intended outcomes?
- Did the offeror adequately detail the similar games or practices in the proposed area? Would the proposed game be an improvement on similar games or current practices?
- Does the proposed game concept have a high degree of potential to lead to a commercially viable and widely disseminated and utilized game?
- Do the letters of endorsement support the significance and potential commercial application of the game?

**b. Phase I R/R&D Objectives and Work Plan (40 points)**

- Does the offeror describe the prototype to be developed in Phase I?
- Does the Phase I Work Plan specify clear, appropriate, well-integrated, and complete plans for the development and refinement of the prototype in Phase I?
- Is the Phase I research design appropriate for demonstrating the usability of the prototype and the initial feasibility of the game concept by the end of Phase I?
- Has the offeror provided one letter of agreement from a delivery setting to participate in Phase I research?

**c. Project Team, Company/Resources, and Budget (20 points)**

- Does the principal investigator have the appropriate experience and training to oversee and manage the proposed project?
- Does the research team bring qualified expertise in the following areas: technological R/R&D; education (or special education if applicable) theory, practice, and research methods for the development and research of the proposed game; and commercialization of education or technology-related products?
- Is there adequate support, including facilities, equipment, supplies, and other resources, from the proposing firm and from sub-contractors?

- Is the narrative budget justification for Phase I appropriate for the project and in line with the budget line-items? Is the Phase I budget adequate to support the proposed project? Or, is the scope of the project beyond the scope of the funding to be provided?
- In addition to the above, the evaluation also considers a proposal's commercial potential as evidenced by the record of commercializing SBIR or other research by the small business and members of the project team.

The Government intends to evaluate proposals and award a contract without discussions with offerors (except clarifications as described in FAR 15.306(a)). Therefore, the offeror's initial proposal should contain the offeror's best terms from a cost or price and technical standpoint. The Government reserves the right to conduct discussions if the Contracting Officer later determines them to be necessary. If the Contracting Officer determines that the number of proposals that would otherwise be in the competitive range exceeds the number at which an efficient competition can be conducted, the Contracting Officer may limit the number of proposals in the competitive range to the greatest number that will permit an efficient competition among the most highly rated proposals.

## **2. Method of Selection and Evaluation Criteria for DARPA SBIR Proposals**

### **Background**

Phase I proposals will be evaluated on a competitive basis and will be considered to be binding for six months from the date of closing of this solicitation unless the offeror states otherwise. If selection has not been made prior to the proposal's expiration date, offerors will be asked if they want to extend their proposal for an additional period of time. Proposals meeting stated solicitation requirements will be evaluated by government scientific or technical personnel knowledgeable in the topic area.

Proposals will be reviewed for relevance to the topic subject matter. Relevant proposals will be evaluated using the criteria listed and a final decision will be made by the DARPA. DARPA may elect to fund several or none of the proposed approaches to the same topic.

The offeror's attention is directed to the fact that non-Government advisors to the Government may review and provide support in proposal evaluations during source selection. Non-government advisors may have access to the offeror's proposals, may be utilized to review proposals, and may provide comments and recommendations to the Government's decision makers. These advisors will not establish final assessments of risk and will not rate or rank offeror's proposals. They are also expressly prohibited from competing for DARPA SBIR or STTR awards in the SBIR/STTR topics they review and/or provide comments on to the Government. All advisors are required to comply with procurement integrity laws and are required to sign Non-Disclosure and Rules of Conduct/Conflict of Interest statements. Non-Government technical consultants/experts will not have access to proposals that are labeled by their proposers as "Government Only."

For proposals that have been selected for contract award, a Government Contracting Officer will draft an appropriate contract to be signed by both parties before work begins. Any negotiations that may be necessary will be conducted between the offeror and the Government Contracting Officer. It should be noted that only a duly appointed contracting officer has the authority to enter into a contract on behalf of the U.S. Government. Upon written request and after final award decisions have been announced, a debriefing will be provided to unsuccessful offerors on their proposals. Restrictive notices notwithstanding, proposals may be handled, for administrative purposes only, by support contractors. All support contractors are bound by appropriate non-disclosure agreements.

### **Evaluation Criteria - Phase I**

DARPA plan to select for award those proposals offering the best value to the Government considering the following factors which are listed in descending order of importance.

- a. The soundness, technical merit, and innovation of the proposed approach and its incremental progress toward topic solution.
- b. The qualifications of the proposed principal/key investigators, supporting staff, and consultants. Qualifications include not only the ability to perform the research and development but also the ability to commercialize the results.
- c. The potential for commercial (Government or private sector) application and the benefits expected to accrue from this commercialization as assessed utilizing the criteria below in "Assessing Commercial Potential of Proposals."

**Assessing Commercial Potential of Proposals**

Phase I commercial potential will be assessed using the following criteria:

**a. Commercialization Strategy.**

See Section F. 1. f. (page 12)

**b. Record of Commercializing prior SBIR/STTR Projects – See Appendix H.**



## **V. CONSIDERATIONS**

### **1. Phase I information for ED/IES SBIR Awardees**

For Phase I, interim progress reports are required and will be due at the end of month one (1) and three (3). A final report is required and will be due at the end of month six (6). The contractor shall email each report to the Contracting Officer's Representative (COR) and to the Contract Specialist (CS).

The interim reports shall include a brief description of the technological R/R&D carried out up to the end of months one (1) and three (3), the plans for feasibility testing, an update on any obstacles encountered during the period, and an update on potential commercial applications which will result from the Phase II R/R&D. This project summary is to be submitted without restriction on publication and may be published by ED.

The Phase I final report shall include a one (1) page project summary as the first page. The report shall identify the purpose of the R/R&D, include descriptions of the prototype that was developed, the R/R&D process, the findings or results from the feasibility testing, an update on any obstacles encountered during the period, and of the potential commercial applications which would result from the Phase II R/R&D. This project summary is to be submitted without restriction on publication and may be published by ED.

The Phase I final report shall also include a video demonstration to highlight the main features and components of the prototype developed in Phase I. Specific instructions on the format for the video and for submitting the video will be provided to the contractor by the COR along with the request for the final report approximately one month prior to the end of Phase I.

All reports shall carry the following acknowledgment statement on the cover page:

“This material is based upon work supported by the U.S. Department of Education under purchase order number (insert contract number here). Any opinions, findings, conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views or policies of the Department of Education.”

### **Payment Schedule**

Payments will be made in accordance with the payment schedule negotiated and agreed to by the Contracting Officer. The offeror shall include his or her cash flow requirements as part of the budget for Phase I. Once invoices are received, the Department intends to pay on the 15th day after the designated billing office receives a proper invoice from the contractor or the 15th day after ED accepts goods or supplies performed by the contractor, whichever is later. Contractors shall be paid upon completion of the final project summary report, normally 6 months after project start. The invoice shall accompany the final summary report.

Contractors shall receive three (3) payments during the Phase I portion of the contract. Contractor's may propose a payment of no more than 50% of the Phase I price to accompany the successful completion of the Interim Progress Report. Contractors are free to propose any breakdown they wish, as long as at least 20% of the Phase I contract price is reserved for payment after acceptance of the final report.

**Required Certification to Submit Prior to Award**

Submission of this certification is required prior to contract award:

*The contractor certifies that:*

- (1) the principal investigator and the small business firm have not accepted funding for the same or overlapping work except as stated in the underlying proposal;*
- (2) all proposals describing the same or overlapping work have been withdrawn from other agencies;*
- (3) the primary employment of the principal investigator is with this firm at the time of the award and will continue during the conduct of the research;*
- (4) the awardee is a small business as defined in this SBIR Solicitation under which the awardee submitted its proposal, and the principal investigator is an employee of the firm and is currently available to perform the proposed work; and*
- (5) the undersigned understands that willfully making a false statement to or concealing a material fact is a criminal offense (U.S. Code, title 18, Section 1001).*

Authorized Company Officer:

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Principal Investigator:

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**Required Certification to Submit with Interim and Final Reports**

Submission of this certification is required with the all interim reports and the final report:

*I certify that the Principal Investigator currently is\_\_\_\_, is not\_\_\_\_ “primarily employed” by the firm as defined in the SBIR solicitation.*

*I certify that the work under this project has\_\_\_\_, has not\_\_\_\_, been submitted for funding to another Federal agency and that it has\_\_\_\_, has not\_\_\_\_ been funded under any other Federal grant, contract, or subcontract.*

*I certify that to the best of my knowledge the work for which payment is hereby requested was performed in accordance with the award terms and conditions and that payment is due and has not been previously requested.*

*I certify that to the best of my knowledge, (1) the statements herein (excluding scientific hypotheses and scientific opinions) are true and complete; and (2) the text and graphics in this report as well as any accompanying publications or other documents, unless otherwise indicated, are the original work of the signatories or individuals working under their supervision.*

*I understand that the willful provision of false information or concealing a material fact in this report or any other communication submitted to ED is a criminal offense (U.S. Code, title 18, Section 1001).*

Authorized Company Officer:

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Principal Investigator:

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## **2. Phase I information for DARPA SBIR Awardees**

### **A. Type of Funding Agreement (Phase I)**

- DARPA Phase I awards will be Firm Fixed Price contracts.
- Companies that choose to collaborate with a University must highlight the research that is being performed by the University and verify that the work is FUNDAMENTAL RESEARCH.
- All DARPA Phase I awardees are required to submit a final report, which is due within 60 days following completion of the technical period of performance and must be provided to the individuals identified in Exhibit A of the contract. Please contact your contracting officer immediately if your final report may be delayed.

### **B. Export Control**

The following will apply to all projects with military or dual-use applications that develop beyond fundamental research (basic and applied research ordinarily published and shared broadly within the scientific community):

(1) The Contractor shall comply with all U. S. export control laws and regulations, including the International Traffic in Arms Regulations (ITAR), 22 CFR Parts 120 through 130, and the Export Administration Regulations (EAR), 15 CFR Parts 730 through 799, in the performance of this contract. In the absence of available license exemptions/exceptions, the Contractor shall be responsible for obtaining the appropriate licenses or other approvals, if required, for exports of (including deemed exports) hardware, technical data, and software, or for the provision of technical assistance.

(2) The Contractor shall be responsible for obtaining export licenses, if required, before utilizing foreign persons in the performance of this contract, including instances where the work is to be performed on-site at any Government installation (whether in or outside the United States), where the foreign person will have access to export-controlled technologies, including technical data or software.

(3) The Contractor shall be responsible for all regulatory record keeping requirements associated with the use of licenses and license exemptions/exceptions.

(4) The Contractor shall be responsible for ensuring that the provisions of this clause apply to its subcontractors.

**Please visit [http://www.pmddtc.state.gov/regulations\\_laws/itar.html](http://www.pmddtc.state.gov/regulations_laws/itar.html) for more detailed information regarding ITAR requirements.**

### **C. Publication Approval (Public Release)**

NSDD 189 established the national policy for controlling the flow of scientific, technical, and engineering information produced in federally funded fundamental research at colleges, universities, and laboratories. The directive defines fundamental research as follows:

"Fundamental research" means basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community, as distinguished from proprietary research and from industrial development, design, production, and product utilization, the results of which ordinarily are restricted for proprietary or national security reasons."

It is DARPA's goal to eliminate pre-publication review and other restrictions on fundamental research except in those exceptional cases when it is in the best interest of national security. Please visit

[http://www.darpa.mil/NewsEvents/Public\\_Release\\_Center/Public\\_Release\\_Center.aspx](http://www.darpa.mil/NewsEvents/Public_Release_Center/Public_Release_Center.aspx) for additional information and applicable publication approval procedures. Visit <http://dtsn.darpa.mil/fundamentalresearch/> to verify whether or not your award has a pre-publication review requirement.

#### **D. Innovations, Inventions and Patents**

##### **1. Rights in Data Developed Under SBIR Funding Agreements**

To preserve the SBIR data rights of the awardee, the Legend (or statements) used in the SBIR Data Rights clause included in the SBIR award must be affixed to any submissions of technical data developed under that SBIR award. If no Data Rights clause is included in the SBIR award, the following legend, at a minimum, should be affixed to any data submissions under that award.

#### **LEGEND**

SBIR Rights Notice (Dec 2007)

These SBIR data are furnished with SBIR rights under Contract No. \_\_\_\_\_ (and subcontract \_\_\_\_\_, if appropriate). For a period of 4 years, unless extended in accordance with FAR 27.409(h), after acceptance of all items to be delivered under this contract, the Government will use these data for Government purposes only, and they shall not be disclosed outside the Government (including disclosure for procurement purposes) during such period without permission of the Contractor, except that, subject to the foregoing use and disclosure prohibitions, these data may be disclosed for use by support Contractors. After the protection period, the Government has a paid-up license to use, and to authorize others to use on its behalf, these data for Government purposes, but is relieved of all disclosure prohibitions and assumes no liability for unauthorized use of these data by third parties. This notice shall be affixed to any reproductions of these data, in whole or in part.

##### **2. Copyrights**

With prior written permission of the Contracting Officer, the awardee normally may copyright and publish material (consistent with appropriate national security considerations, if any) developed with ED support. Participating SBIR agencies receive a royalty-free license for the Federal Government and requires that each publication contain an appropriate acknowledgment and disclaimer statement.

##### **3. Patents**

Small business firms normally may retain the principal worldwide patent rights to any invention developed with Government support. The Government receives a royalty-free license for Federal Government use, reserves the right to require the patent holder to license others in certain circumstances, and requires that anyone exclusively licensed to sell the invention in the United States must normally manufacture it domestically. To the extent authorized by 35 U.S.C. 205, the Government will not make public any information disclosing a Government-supported invention for a 4-year period (that may be extended by subsequent SBIR contracts) to allow the awardee a reasonable time to pursue a patent.

##### **4. Invention Reporting**

SBIR awardees must report inventions to the awarding agency within 2 months of the inventor's report to the awardee. The reporting of inventions may be accomplished by submitting paper documentation, including fax.

**E. Subcontracting Limits – Research and Analytical Work**

For Phase I, at least two-thirds of the research and/or analytic effort must be performed by the proposing small business concern unless otherwise approved in writing by the contract officer after consultation with the Contracting Officer (CO) and the SBIR program manager.

**F. Awardee Commitments**

Upon award, the contractor will be required to make certain legal commitments through acceptance of numerous clauses in the procurement.

The outline that follows is illustrative of the types of clauses that will be included in the contract. This is not a complete list, nor does it contain the specific wording of these clauses. Participating SBIR agencies will make awards as described in CFR Title 48-Federal Acquisition Regulations. The resultant agreement will contain legally binding clauses. Copies of complete general clauses will be made available prior to award. A complete set of these requirements is available now upon request.

**1. Standards of Work**

Work performed under the contract must conform to high professional standards.

**2. Contract Type**

This will be a Firm Fixed-Price contract. The Contractor is obligated to complete all work successfully on time in order to get paid. The value of this contract will not vary with the cost experience of the contractor.

**3. Inspection**

Work performed under the contract is subject to Government inspection and evaluation at all reasonable times.

**4. Examination of Records**

The Comptroller General (or a duly authorized representative) shall have the right to examine any directly pertinent records of the contractor involving transactions related to this contract.

**5. Default**

The Government may terminate the agreement if the contractor fails to perform the work contracted.

**6. Termination for Convenience**

The agreement may be terminated at any time by the Government if it deems termination to be in its best interest, in which case the contractor will be compensated for work performed and for reasonable termination costs.

**7. Disputes**

Any dispute concerning the contract that cannot be resolved by agreement shall be decided by the Contracting Officer with right of appeal.

**8. Contract Work Hours**

The contractor may not require an employee to work more than eight (8) hours a day or forty (40) hours a week unless the employee is compensated accordingly (that is, receives overtime pay).

**9. Equal Opportunity**

The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin; or because he or she is a disabled veteran or a veteran of the Vietnam era; or because he or she is physically or mentally handicapped.

**10. Officials Not to Benefit**

No Government official shall benefit personally from the agreement.

**11. Covenant Against Contingent Fees**

No person or agency has been employed to solicit or secure the agreement upon an understanding for compensation except bonafide employees or commercial agencies maintained by the contractor for the purpose of securing business.

**12. Gratuities**

The agreement may be terminated by the Government if any gratuities have been offered to any representative of the Government to secure the agreement.

**13. Patent Infringement**

The contractor shall report each notice or claim of patent infringement based on the performance of the agreement.

**14. American Made Equipment and Products**

When purchasing equipment or a product under the SBIR contract, purchase only American-made items whenever possible.

**15. Publicity**

Any publications resulting from this contract will need a disclaimer noting that the project was funded by the participating SBIR agency and that publication does not necessarily reflect the views or policies of that agency.

**16. Background Investigation Requirement**

Any contractor/subcontractor staff or consultants who will work on the contract for thirty (30) days or more (in total) and who will have access to sensitive data (for example, but not limited to, data protected by the Privacy Act or FERPA) must undergo a government background investigation. This investigation will include, among other things, a credit check and criminal background check. The cost of performing the investigation is born by the Government; however, the Contractor will be responsible for the costs of fingerprinting any proposed staff that need an investigation. The cost of fingerprinting may be included in your proposed budget. Offerors should check with their local policy agency to determine the cost of fingerprinting (two fingerprint sets are required per person).

## **17. Research Activities Involving Human Subjects**

### **For ED/IES SBIR Proposals**

Research activities involving human subjects must be in compliance with the regulations issued by the U.S. Department of Education to safeguard the rights and welfare of human research subjects. The human subjects contracts clause can be found at <http://www.ed.gov/policy/fund/reg/clibrary/humansub.html>.

See [ED/IES Appendix A](#) for more information.

### **For DARPA SBIR Proposals**

Research activities involving human subjects must be in compliance with the regulations issued by the Department of Defense to safeguard the rights and welfare of human research subjects. Offerors must segregate the cost of performing the design and development of the prototype and the cost of performing the human subject testing into separate tasks in the cost proposal.

See [DARPA Appendix A](#) for more information.

### **A. Joint Ventures or Limited Partnerships**

Joint ventures and limited partnerships are permitted, provided that the entity created qualifies as a small business concern as defined in this program solicitation.

### **B. Cost-Sharing**

Cost-sharing is permitted for proposals under this program solicitation; however, cost-sharing is not required. Cost-sharing will not be an evaluation factor in consideration of your proposal.

### **C. Profit/Fee**

Contracts may include a reasonable fee or profit on SBIR contracts, consistent with normal profit margins provided to profit-making firms for R/R&D work.

### **D. Standard Terms and Conditions**

Upon acceptance of an award, the Contractor must comply with the terms and conditions contained or referenced in the Notice of Award document. These terms and conditions, constituting legal requirements, are imposed on an awardee by statute, regulations, administrative policy, or the award document itself.

### **E. Additional Information**

- This program solicitation is intended for informational purposes and reflects current planning. If there is an inconsistency between the information contained herein and the terms of any resulting SBIR contract, then the terms of the contract are controlling.
- In the interests of those with special needs, the Offeror is encouraged to develop products that also include alternate formats (e.g., closed- or open-captioning for films and/or videotapes, Braille, large print, or audiotape).
- Before award of an SBIR funding agreement, the Government may request the applicant to submit certain organizational, management, personnel, and financial information to assure responsibility of the applicant.
- The Government is not responsible for any monies expended by the applicant before award of any funding agreement.

- This program solicitation is not an offer by the Government and does not obligate the Government to make any specific number of awards. Also, awards under the SBIR Program are contingent upon the availability of funds.
- The SBIR program is not a substitute for existing unsolicited proposal mechanisms. The Government shall not accept unsolicited proposals under the SBIR program in either Phase I or Phase II.
- If an award is made pursuant to a proposal submitted under this program solicitation, the Contractor will be required to certify that they have not previously been, nor are currently being, paid for essentially equivalent work by any agency of the Federal Government.
- For DARPA SBIR proposals only, companies that choose to collaborate with a University must highlight the research that is being performed by the University and verify that the work is FUNDAMENTAL RESEARCH.

**F. Awards**

1. ED/IES SBIR has a Phase I award limit of \$150,000 and anticipates awarding up to four (4) firm-fixed price contracts under this solicitation.
2. DARPA SBIR has a Phase I award limit of \$150,000 and anticipates awarding up to six (6) firm-fixed price contracts under this solicitation.

Successful offerors have up to 6-months to carry out the proposed Phase I effort. ED/IES and DARPA will provide specific instructions for the preparation and submission of Phase II proposals to qualifying Phase I awardees near the completion of the Phase I work.



## VI. PROPOSAL SUBMITTAL INFORMATION

### **QUESTIONS**

All questions regarding this joint agency solicitation must be directed in writing to the U.S. Department of Education's Contract Specialist, Sadaf Afkhami. Any responses would be posted as an amendment to the solicitation on FedBizOpps. The Government cannot guarantee that questions submitted after January 4, 2013, 2 P.M. ET, will receive a response.

Sadaf Afkhami

[Sadaf.Afkhami@ed.gov](mailto:Sadaf.Afkhami@ed.gov)

NOTE: Prior to the awards being announced on the Federal Business Opportunities website, offerors are advised to not contact participating SBIR agency personnel with questions regarding the timing of the announcement.

### **1. ED/IES SBIR: Instructions for Submission of PAPER Proposals**

A single package must either be mailed or hand-delivered to

U.S. Department of Education  
Office of the Chief Financial Officer  
Contracts and Acquisitions Management  
400 Maryland Avenue, SW, LBJ Building, Room BC102  
Washington, D.C. 20202-4230  
Attn: Sadaf Afkhami, Contract Specialist

### **IMPORTANT NOTE:**

All offerors should be aware that packages sent to the U.S. Department of Education through FEDEX, UPS, U.S. Postal Service, or hand-carried will no longer be accepted by the point of contact in the Contracts and Acquisitions Management office (i.e., Sadaf Afkhami, Contract Specialist). All packages must go through the Department's Mail Room located at 400 Maryland Avenue, SW, LBJ Building, Room BC102, Washington, D.C. 20202-4230 (see complete address above).

Contact information: Mail Room Phone number: (202) 401-0969

Hours: 7:00 am to 5:00 pm ET

In addition, the Department (ED) recommends that the delivery person provide and/or obtain a receipt for your proposal that gives the date and time the proposal enters the Federal facility and acceptance of the proposals.

Hand-carried proposals must be delivered by entering through the building and stopping at the Guard's Desk. Offerors should indicate for which solicitation they are submitting a proposal and should have proper identification. Offerors should consider this delay in meeting the time specified for proposal receipt.

**The due date and time for the receipt of proposals is 2 P.M. ET on February 5, 2013.**

***NOTE: Faxed or emailed proposals will not be reviewed.***

The ED/IES SBIR package must contain the following:

- One (1) original and three (3) copies of the Phase I proposal;
- Two (2) Compact Discs with an electronic version of the Phase I proposal in one or both of the following formats: Microsoft Word (Word) and/or Portable Document Format (PDF).

**NOTES:**

- *Please include all components of the electronic versions of the proposal (Project Information, Project Narrative, all Appendices) in a single file.*
- *Please ensure that the company name is labeled on the compact disks.*
- *Please ensure that the compact disks are placed in a protective casing or sleeve so as to avoid damage.*

Approximately 1-week after the proposal is received, ED personnel will send an email to the individual listed as the Principal Investigator to provide notification that the proposal was received.

**General Format and Binding Requirements**

To ensure that the text is easy for reviewers to read and that all offerors have the same amount of available space in which to describe their projects, offerors must adhere to the page, type size, and format specifications for the entire proposal narrative, including footnotes.

- **Page and margin specifications:** For the purpose of proposals submitted under this solicitation, a “page” is 8.5 inches x 11 inches, with 1 inch margins at the top, bottom, and both sides.
- **Spacing:** Single space all text in the proposal narrative, including titles, headings, footnotes, quotations, references, and captions, as well as all text in charts, tables, figures, and graphs.
- **Type specifications (font specifications):** Type must conform to the following requirements: The height of the letters must not be smaller than 12 point. Type density, including characters and spaces, should be no more than 15 characters per inch (cpi). For proportional spacing, the average for any representative section of text should not exceed 15 cpi. Type size must yield no more than 6 lines of type within a vertical inch. Standard black type must be used for text to permit photocopying. Offerors must check the type size using a standard device for measuring type size, rather than relying on the font selected for a particular word processing/printer combination.
- **Figures, charts, and graphs:** The proposal can contain color figures, charts, or graphs, but it must contain only material that reproduces well when printed out or photocopied in black and white. Such figures, charts, or graphs must be included within this 15-page section.
- **Binding proposals:** For paper proposals submitted to ED/IES, proposals must be bound by binder clips only and not staples. Any other method increases cost and does not affect the evaluation of the technical proposal. Offerors are asked not to use binders, tabs, or blank color pages within the proposal to divide or delineate sections. Offerors should not use forms or bindings, such as plastic covers bound by comb binding, three-

ring binders, or folders. To conserve paper and save on shipping costs associated with the weight of the packages mailed, offerors are encouraged to submit proposals with double-sided printed pages (i.e., print on both sides of the page).

#### **Additional Instructions**

- Any proposal, modification, or revision received at the Government office designated in the solicitation after the exact time specified for receipt of offers is “late” and will not be considered unless it is received before award is made, the Contracting Officer determines that accepting the late offer would not unduly delay the acquisition; and
  - If it was transmitted through an electronic commerce method authorized by the solicitation, it was received at the initial point of entry to the Government infrastructure not later than 5:00 P.M. one working day prior to the date specified for receipt of proposals; or
  - There is acceptable evidence to establish that it was received at the Government installation designated for receipt of proposals and was under the Government’s control prior to the time set for receipt of proposals; or
  - It was the only proposal received.
- The Government reserves the right to make amendments to the solicitation at any time during the procurement process. Offerors are required to comply with any new provisions or other requirements in solicitation amendments. Any amendment would be posted at the Fedbizopps.gov postings for this solicitation.
- Proposals may be withdrawn at any time before award. Withdrawals are effective upon receipt of notice by the Contracting Officer.
- The Government intends to make the awards without holding discussions with the offerors. However, the Government may hold discussions if it determines that they are necessary.
- The Government will consider any offer submitted in response to this solicitation to be good for 180 days from the closing date of the solicitation, unless otherwise specified by the offeror. Debriefs will be conducted in accordance with Federal Acquisition Regulation 15.5.
- Due to continued delays in the U.S. mail, the Government strongly recommends that offerors submit their proposal via a commercial delivery service, courier service, or hand delivery.

#### **2. DARPA SBIR: Submission of Electronic Proposals**

Offerors must be registered in the Department of Defense (DoD) Electronic Submission Web site at [www.dodsbir.net/](http://www.dodsbir.net/) submission.

Each proposal must be prepared and submitted through this Web site and must contain completed:

- Front Page and Technical Proposal – a single file including a Front Page with the required information and a 15-page project narrative
- Appendix I: Proposal Cover Sheet – **must be completed online**
- Appendix G: Cost Proposal – **must be completed online**
- Appendix H: Company Commercialization Report – **must be completed online**

**Specifications on the Components of the Proposal**

- Classified proposals are not accepted under the DoD SBIR Program.
- For complete electronic proposal submission on the DoD Electronic Submission Web site, first prepare the proposal Cover Sheet (select "SBIR Phase I Proposal Preparation" from the Main Menu). The site will assign the Cover Sheet a proposal number, which will be used for tracking throughout the submission process.
- Prepare the Front Page and the Project Narrative of the proposal in a single PDF file, check it for viruses, and upload it to the Submission Web site, following instructions on the Web site.
  - The Front Page and Project Narrative should be a single file, including all graphics and attachments, should have the company name and proposal number (from the Cover Sheets) in the header, and should be in Portable Document Format (PDF).
  - Offerors are responsible for performing a virus check on each technical proposal prior to uploading. Every uploaded file will be scanned for viruses. If a virus is detected, the file will be deleted and may cause rejection of the proposal.
  - Once uploaded, the technical proposal file may be viewed or down loaded from the Web site by clicking on the Check Upload button.
  - Offerors are responsible for verifying the technical proposal was received and converted properly.
  - Technical proposals may be uploaded as often as necessary, each time overwriting the file previously submitted.
  - Once a file is overwritten, the previous version is NOT retrievable.
  - Offerors electing to modify their proposals in any way must allow enough time to upload a complete updated proposal. Failure to provide a complete modification by the solicitation closing will render the offeror's proposal as "late" regardless of whether the offeror had previously submitted a complete proposal.
- Appendix G: Cost Proposal (Phase I Budget) must be submitted using the on-line form. Include cost justifications as an appendix to the technical proposal upload. Label this section Appendix G Cost Proposal Supporting Document.
- Prepare Appendix H: Company Commercialization Report on the DoD Electronic Submission Web site (select "Company Commercialization Report" from the Main Menu).
- Signatures are not required on the Cover Sheet, Cost Proposal (Phase I Budget), and Company Commercialization Report at the time of submission for electronic submission. If the proposal is selected for award, the Contracting Officer will contact you for signatures.
- Firms are encouraged, but not required, to have a CAGE code and DUNS number at the time of proposal submission; however, firms must obtain these before DoD can award a contract to the firm.
- All completed proposals (i.e., those with complete Cover Sheet, Front Page and Project Narrative, Cost Proposal (Phase I Budget), and Company Commercialization Report) not marked for deletion by the solicitation close deadline are submitted and will be evaluated.
- There is no "submit" button on the Submission Site for Phase I proposals.

**Deadline of Proposals**

- Complete proposals must be submitted to the DoD Submission Web site by the specified closing time, 2:00 P.M. ET on February 5, 2013. The solicitation deadline is firm.
- Complete submission means that the entire proposal (including the following four (4) parts: cover sheet, technical proposal plus required appendices, cost proposal plus Appendix G Supporting Documentation, and Company Commercialization Report) has been properly completed and fully transmitted to the DoD Submission Web site.
- As the close date draws near, heavy traffic on the web server may cause delays. Plan ahead and leave ample time to prepare and submit your proposal. Offerors bear the risk of Web site inaccessibility due to heavy usage in the final hours before the solicitation closing time.
- In accordance with FAR 52.215-1, offerors are responsible for submitting proposals, and any modification, or revisions, so as to reach the Government office designated in the solicitation by the time specified in the solicitation. Any proposal, modification, or revision received at the Government office designated in the solicitation after the exact time specified for receipt of offers is "late" and will not be considered unless it is received before award is made, the Contracting Officer determines that accepting the late offer would not unduly delay the acquisition; and –
  - (1) If it was transmitted through an electronic commerce method authorized by the solicitation, it was received at the initial point of entry to the Government infrastructure not later than 5:00 p.m. one working day prior to the date specified for receipt of proposals; or
  - (2) There is acceptable evidence to establish that it was received at the Government installation designated for receipt of offers and was under the Government's control prior to the time set for receipt of offers; or
  - (3) It is the only proposal received.
- Acceptable evidence to establish the time of receipt at the Government installation includes documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.
- Offerors are responsible for checking their proposal submission through the DoD Electronic Submission Web site (click on the "Check Proposal" icon to the right of the proposal number) to confirm that the proposal package is complete and readable.
- Proposals may be withdrawn by written notice received at any time prior to award. Proposals may also be withdrawn in person by an offeror or his authorized representative, provided his identity is made known and he signs a receipt for the proposal.
- Any modification or revision may not make the proposal longer than the applicable page limitation (excluding the cost proposal and Company Commercialization Report). Notwithstanding the above, a late modification of an otherwise successful proposal which makes its terms more favorable to the Government will be considered at any time it is received and may be accepted.

**Notification of Proposal Receipt**

- The DoD Submission website will provide offerors a printable confirmation of successful proposal submission upon upload completion.
- Offerors are encouraged to print and retain a copy of this proposal receipt confirmation for their records.

**Information on Proposal Status**

- After the solicitation closing date, the person listed as the “Corporate Official” on the Proposal Coversheet will receive an e-mail with instructions for retrieving a proposal acknowledgement receipt from the DARPA SBIR/STTR Information Portal.
- Once the source selection is complete, the person listed as the “Corporate Official” on the Proposal Coversheet will receive an email with instructions for retrieving a letter of selection or non-selection from the DARPA SBIR/STTR Information Portal.

Small Businesses will receive a notification for each proposal submitted. Please read each notification carefully and note the proposal number and topic number referenced. All communication from the DARPA SBIR/STTR Program management will originate from the sbir@darpa.mil e-mail address. Please white-list this address in your company’s spam filters to ensure timely receipt of communications from our office.

**Debriefing of Offerors**

DARPA will provide a debriefing to the offeror in accordance with FAR Subpart 15.5. The notification letter referenced above will provide instructions for requesting a proposal debriefing.

## **VII. SCIENTIFIC AND TECHNICAL INFORMATION SOURCES**

The below internet resources may provide useful information in preparing SBIR proposals.

### **Federal Government**

Official U.S. Government Small Business Innovation Research Program (SBIR) website:  
[www.sbir.gov](http://www.sbir.gov)

Federal Acquisition Regulation: <https://www.acquisition.gov/>

Federal Business Opportunities (FedBizOpps): <https://www.fbo.gov>

### **Department of Education (ED) / Institute of Education Sciences (IES)**

ED SBIR Program: <http://www.ed.gov/programs/sbir/index.html>

IES SBIR Program: <http://ies.ed.gov/ncer/sbir/>

U.S. Department of Education: <http://www.ed.gov/>

IES Home Page: <http://ies.ed.gov/>

IES Funding Opportunities: <http://ies.ed.gov/funding/>

National Center for Education Research: <http://ies.ed.gov/ncer/>

National Center for Special Education: <http://ies.ed.gov/ncser/>

What Works Clearinghouse: <http://ies.ed.gov/ncee/wwc/>

### **Defense Advanced Research Projects Agency**

Defense Advanced Research Projects Agency: <http://www.darpa.mil/>

DARPA SBIR: [http://www.darpa.mil/Opportunities/SBIR\\_STTR/SBIR\\_STTR.aspx](http://www.darpa.mil/Opportunities/SBIR_STTR/SBIR_STTR.aspx)

**VIII. Phase I PROPOSAL PACKAGE CHECKLIST**

**A. ED/IES SBIR PROPOSAL CHECKLIST:**

**CLOSING DATE: February 5, 2013 at 2:00 P.M. ET**

- ✓ Have you prepared the proposal according to the instructions set forth?
- ✓ Have you registered with SAM?
- ✓ Did you provide your DUNS No.?
- ✓ Have you included all the required components of the Front Page and the Project Narrative Technical Content?
- ✓ Did your Phase I Work Plan describe the R/R&D process in which a prototype of an education technology game would be developed?
- ✓ Does "Section III.F. Project Narrative Technical Content" contain no more than 15 pages?
- ✓ Are issues (and, if applicable, exemptions) relating to Research Activities Involving Human Subjects adequately addressed?
- ✓ In Appendix B, have you provided notification of "Similar or Related Award(s) or Proposal(s)" in the proposal narrative, if applicable?
- ✓ Have you provided notification of "Documentation and Status of Phase II Awards" in Appendix E, if applicable?
- ✓ Have you submitted all applicable appendices (including, at a minimum, appendices A, B, C, G, H, and I)?
- ✓ Have you submitted all required copies of documents and Compact Disks for the proposal package described in [Section VI. Proposal Submittal](#) Information?



**B. DARPA SBIR PROPOSAL CHECKLIST**

**PARTICIPATION CHECKLIST**

- ☐ Did you register your firm on the SAM website?
- ☐ Did you register your firm DoD Electronic Submission Web at: [www.dodsbir.net/submission/SignIn.asp](http://www.dodsbir.net/submission/SignIn.asp)?
- ☐ Did you provide your DUNS and CAGE Numbers?

**PHASE I PROPOSAL SUBMISSION CHECKLIST:**

**The following criteria must be met or your proposal may be REJECTED.**

- \_\_\_\_1. Include a header with company name, proposal number and topic number to each page of your technical proposal. Font size is NO LESS than 10pt font. Proposal utilizes ONE COLUMN format.
- \_\_\_\_2. Ensure the Project Abstract and other content provided on the cover sheet DOES NOT contain proprietary information? (Mark proprietary information within the technical proposal.).
- \_\_\_\_3. The Phase I Work Plan describes the R/R&D process in which a prototype of an education technology game would be developed.
- \_\_\_\_4. Issues (and, if applicable, exemptions) relating to Research Activities Involving Human Subjects adequately addressed.
- \_\_\_\_5. Include tasks to be completed during the option period and include the costs in the cost proposal.
- \_\_\_\_6. Break out subcontractor, material and travel costs in detail. Use the "Explanatory Material Field" in the DoD cost proposal worksheet for this information, if necessary.
- \_\_\_\_7. The base effort does not exceed \$150,000 and six months.
- \_\_\_\_8. The technical proposal upload does not exceed fifteen (15) pages (excluding APPENDICES) Any page beyond fifteen (15) will be redacted prior to evaluations.
- \_\_\_\_9. Appendices are properly labeled. If these sections are NOT properly labeled, they may be redacted.
- \_\_\_\_10. The technical proposal upload follows the below format:
  - \_\_\_\_ Phase I work plan (pages 3-18) - REQUIRED
  - a. \_\_\_\_ Appendix A - Human Subjects Information - REQUIRED
  - b. \_\_\_\_ Appendix B - Similar or Related Awards or Proposals- REQUIRED
  - c. \_\_\_\_ Appendix C - Résumé Pages - REQUIRED
  - d. \_\_\_\_ Appendix D - Letter of Agreement for Participation- REQUIRED

e. \_\_\_\_Appendix E - Documentation and Status of Previous Phase II Awards-  
OPTIONAL

f. \_\_\_\_Appendix F - Letters of Endorsement – (Maximum 3 letters) –  
OPTIONAL\*\*\*

g. \_\_\_\_Appendix G – Supporting Documentation (Cost Proposal) - REQUIRED

\_\_\_\_11. Upload your technical proposal (see #10 above for proposal components) and complete the online DoD Proposal Cover Sheet, DoD Company Commercialization Report, and Cost Proposal electronically through the DoD submission site by February 5, 2013, at 2:00PM Eastern Time.

\_\_\_\_12. After uploading your file on the DoD submission site, review it to ensure that it appears correctly. Contact the DoD Help Desk immediately with any problems.

**\*\*\*Please note: In accordance with section 3-209 of DOD 5500.7-R, Joint Ethics Regulation, letters from government personnel will NOT be considered during the evaluation process.**

## IX. EDUCATION TECHNOLOGY GAMES TOPIC AREAS

### **Topic 1: U.S. Department of Education, Institute of Education Sciences (ED/IES)**

#### **R/R&D of games for statistics and probability**

**Description:** Statistics and probability are mathematical methods used to collect, organize, describe, and analyze numerical data, and to understand chance. Knowledge and skill of statistics and probability is vital for individuals to navigate daily life, from understanding the weather report to election results to opinion polls on social media websites. Expertise in statistics and probability is a requisite for a wide range of professions, including careers in the physical and social sciences, in business, or the military. Statistics and probability are also prominently featured in national K-12 core standards in mathematics. Despite their importance, national assessments demonstrate that many U.S. students are not proficient in statistics and probability. Research findings show that students' use of inappropriate reasoning in statistics and probability is widespread and persistent and that correcting such misconceptions is difficult. Further, most students do not find statistics and probability to be engaging topics, and many mathematics teachers have difficulty incorporating applications of statistics and probability within their instructional practices. Technology and games may motivate and engage students by providing exciting narratives and video-game quality graphics, challenging discovery-based tasks, adaptive supports that adjust to and support individual learners, and competition and rewards.

**Objective:** Develop education technology games to support student learning in the area of statistics and probability. Along with supporting student learning of standards relevant content, games must also help students gain an appreciation for the diverse applications of statistics and probability and its relevance to their lives. Games can be played by students outside of class time or incorporated within more formal instructional settings by teachers.

#### **Specifications:**

- Games can be for students in general or special education settings.
- Games can focus on statistics or probability, or both.
- Games for students without disabilities
  - can be for levels from kindergarten through adult learners.
  - must be used in conjunction with an education delivery setting (e.g., schools, after-school programs, distance learning programs, community training programs, or adult education programs).
- Games for students with or at risk for disabilities
  - can be for students in kindergarten through students transitioning from high school.
  - must be used in general or special education settings (e.g., inclusive mathematics classrooms, special education classrooms), or alternative school settings, or supplemental education services, as defined in Section 1116(e) of the Elementary and Secondary Education Act of 1965, as amended by the No Child Left Behind Act of 2001.
- In general or special education settings, or alternative school settings, or as supplemental education services, games may be, but are not limited to, games that replace existing

curricula or instruction, supplement existing curricular materials (e.g., homework), or assess student learning.

For a Phase I project, the scope of the proposed project (in terms of time needed to complete the R/R&D work and resources needed to do so) must be appropriate for the Department's SBIR program. ED/IES recognizes that R/R&D requirements for some education technology exceed the time and resources provided by the SBIR program. In such cases, offerors should consider other avenues for funding.

For more information on the specific interests of the Institute of Education Sciences in the U.S. Department of Education or for other funding opportunities for education technology development and evaluation, offerors are strongly encouraged to consult the National Center for Education Research (NCER) [funding opportunity webpage](#) and the National Center for Special Education Research [funding opportunity webpage](#).

**References:**

National Governors Association Center for Best Practices and Council of Chief State School Officers Common, Core State Standards Initiative. (2010). Available at: [www.corestandards.org](http://www.corestandards.org).

Garfield, J., Ben-Zvi, D. (2007). How Students Learning Statistics Revisited: A Current Review of Research on Teaching and Learning Statistics. *International Statistics Review*. 75: 372-396.

U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2012 Math Assessment. (2012). Available at: <http://nces.ed.gov/nationsreportcard/mathematics/interpret-results.asp>.

**Keywords:** Statistics and probability learning, intelligent tutors, education, pedagogy, games, video games.

## Topic 2: U.S. Department of Education, Institute of Education Sciences (ED/IES)

### R/R&D of games for English Learners

**Description:** Students whose first language is not English face a dual challenge in U.S. schools – they are both learning to speak, read and write in a new language at the same time they are acquiring new knowledge in many content areas. ChildStats.gov reports that in 2010, 1 in 5 children between the ages of 5 and 17 spoke a language other than English at home, and a quarter of these students spoke English with difficulty. In a recent study NAEP national writing assessment among students in grade 12, English Learners scored 50 points below non-English Learners, with the vast majority of English Learners below proficiency. In addition, the Data Accountability Center reports that nearly 500,000 school-age children receive special education services under the Individuals with Disabilities Education Act and are limited English proficient. The number of English Learners is projected to continue to increase in the next decade. Many teachers and schools face difficulties in meeting the diverse language and learning needs of English Learners with and without disabilities. Technology and games may have the capacity to engage students through exciting narratives, to build off each student’s native language skills while acquiring English and learning content, to tailor learning to the specific constellation of skills of each student, and to leverage the unique cultural resources that English Learners bring to their education.

**Objective:** Develop games to support relevant outcomes for English Learners. These outcomes include either the development of general English language skills (including listening comprehension, speaking, reading, and/or writing) or the development of improved content knowledge through additional supports for English Learners. Content areas may include STEM, literature, social studies, history, and civics.

#### **Specifications:**

- Games can be for students in general, special education, or early intervention settings.
- Games for students without disabilities
  - can be for levels from pre-kindergarten through adult learners.
  - must be used in conjunction with an education delivery settings (e.g., schools, after-school programs, distance learning programs, community training program, or adult education programs).
- Games for students with or at risk for disabilities
  - can be for children (ages 2 to 5 years) or students with or at risk for disabilities from kindergarten through students transitioning from high school.
  - may be for use in schools, alternative school settings, or supplemental education services as defined in Section 1116(e) of the Elementary and Secondary Education Act of 1965, as amended by the No Child Left Behind Act of 2001, or may be used in home settings with family members.
- In general, special, or early intervention education settings, alternative school settings, or as supplemental education services games may be, but are not limited to, games that replace existing curricula or instruction, supplement existing curricula materials (e.g., homework), or assess student learning (content and/or linguistic skill).
- Games must address relevant standards for English learner outcomes that either
  1. develop English skills in listening comprehension, speaking, reading, and/or writing, **or**

2. improve content knowledge in STEM, literature, social studies, history, and civics.

For a Phase I project, the scope of the proposed project (in terms of time needed to complete the R/R&D work and resources needed to do so) must be appropriate for the Department's SBIR program. ED recognizes that R/R&D requirements for some education technology exceed the time and resources provided by the SBIR program. In such cases, offerors should consider other avenues for funding.

For more information on the specific interests of the Institute of Education Sciences in the U.S. Department of Education or for other funding opportunities for education technology development and evaluation, offerors are strongly encouraged to consult the National Center for Education Research (NCER) and the National Center for Special Education Research [funding opportunity webpage](#).

***References:***

August, D. and Shanahan, T. (2006). *Developing Literacy in Second Language-Language Learners*. New Jersey: Lawrence Erlbaum Associates.

Federal Interagency Forum on Child and Family Statistics. *America's Children in Brief:*

*Key National Indicators of Well-Being (2012)*. Washington, DC: U.S. Government Printing Office. Available at: <http://www.childstats.gov/americaschildren/famsoc.asp>

U.S. Department of Education, Office of Special Education Programs, Individuals with Disabilities Education Act (IDEA) Data, Data Accountability Center (2008). Available at: [https://www.ideadata.org/arc\\_toc10.asp#partbLRE](https://www.ideadata.org/arc_toc10.asp#partbLRE)

U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2011 Writing Assessment. (2011). Available at: [http://nationsreportcard.gov/writing\\_2011/](http://nationsreportcard.gov/writing_2011/)

KEYWORDS: English language teaching and learning, intelligent tutors, formative assessment, education, pedagogy, games, video games.

### Topic 3: Defense Advanced Research Projects Agency (DARPA)

#### R/R&D of neuroplastic games for foreign language learning

**Description:** Foreign language and cultural proficiency among military and civilian personnel have long been important to the Department of Defense. Such proficiency promotes sensitivities that are necessary for the demands of the 21<sup>st</sup> Century. Although humans can learn new languages at any point in their lifespan, it is much easier to acquire new languages early in life. It has also been shown that once the brain is primed to learn a new language, it is easier to acquire additional languages later in life.

**Objective:** Determine if it is possible to develop engaging IOS/Android games that help students develop an “ear” for foreign languages to help prime them to learn new languages in the future. Game design and research approach should allow for the optimization of pedagogical approaches based on performance of the individual learner and across a large population of users. The goal of the current program is to determine whether it is possible to prime individuals for learning new languages by creating games that require users to discriminate and/or produce basic phonetics associated with a wide variety of different languages (Arabic, Chinese, Dari, French, Spanish, Japanese, Pashto, etc.). Can these games improve language learning early in life? Can they help language learners who are older? Are the results of the game long lasting? We are not seeking standard computer-based learning systems, but game-based interactive systems to professional game quality standards that are engaging, motivating, and challenging to the user.

#### **Specifications:**

- The product must include mobile, game-based application(s) to be used to teach students in kindergarten through grade 6. Special education settings may be included.
- Preference will be given to applications that will operate across numerous platforms.
- At a minimum, along with plans to develop a prototype, offerors must also provide extensive storyboards outlining the user interface and user interactions.
- Potential dual use of the toolset could be applied to the education to support in-class learning of computer science and computing concepts for early programmers. The system can also be used to develop critical thinking and problem solving abilities in children.
- Proposals MUST reflect team expertise in language training, educational research, and professional game production. TEAMS THAT DO NOT REFLECT THESE SKILL SETS WILL NOT BE CONSIDERED.

#### **References:**

Brown E. (ed.) (1988) *Learning languages with technology*, Coventry: MESU.

Butler-Pascoe M. E. (2011) "The history of CALL: the intertwining paths of technology and second/foreign language teaching", *International Journal of Computer-Assisted Language Learning and Teaching (IJCALLT)* 1, 1: 16-32: <http://www.igi-global.com/ijcallt>

Swartz, Merryanna L. and Masoud Yazdani, editors. 1992. *Intelligent Tutors for Foreign Language Learning*. Springer Verlag.

Wenger, Etienne. 1987. *Artificial Intelligence and Tutoring Systems: Computational and Cognitive Approaches to the Communication of Knowledge*. Morgan Kaufmann.

KEYWORDS: Foreign language teaching and learning, intelligent tutors, education, pedagogy, games, video games, mobile device, IOS/ANDROID applications



#### Topic 4: Defense Advanced Research Projects Agency (DARPA)

##### R/R&D of a hybrid videogame/graphic novel to support computer science education

**Description:** Learning a new programming language can be difficult for first-time students. Learning to program robots, introduces additional challenges since it involves more than just learning a programming language. Students must also understand principles of physics and mathematics. Game-based computer simulations can provide dynamic physical representations of environments in which robots can interact, but do not naturally provide the ability to provide instruction in areas such as mathematics and computer logic that require sequential processes.

**Objective:** Develop a professional quality software application that merges videogames with interactive graphic novel elements to teach students the basics of computer programming for robots commonly used in classroom environments. Game design, architecture, and research approach should allow for the optimization of pedagogical approaches based on performance of the individual learner and across a large population of users. The goal is to create a hybrid interactive software application on mobile platforms (IOS, Android, etc.,) that combines the best elements of professional quality videogames and graphic novels/sequential art to teach computer-programming skills related to commercially available robotics simulations and the related mathematics and physics. Graphic novel elements should NOT simply be illustrations, but should incorporate storytelling to provide an interesting user experience to compliment the videogame. We are not seeking standard computer-based learning systems, but game-based interactive systems to professional game quality standards that are engaging, motivating, and challenging to the user.

##### Specifications

- The product must include mobile, game-based application(s) to be used to teach students in grades Kindergarten through 12. Special education settings may be included.
- The game must be designed to be used in a variety of educational environments.
- Themes related to both military applications and civilian applications will be considered.
- Scenarios should encompass both single-player and multi-player modes to enable the use of this software in both classroom and team competition environments.
- The system should educate, train, and assess the student's knowledge.
- The programming models should build on previous lessons and enable student to use that knowledge and understanding for use with more advanced programming constructs.
- The software development tools and target robotics platforms must be identified in the proposal.
- The offeror must detail the development of the conceptual design and framework for the proposed system, and include the programming language(s) that will be taught to students.
- At a minimum, along with plans to develop a prototype of the game, the proposal must provide details on extensive storyboards outlining the user interface and user interactions in the design of the game-based intelligent tutoring/robotic system with storyboards for user interface and design.
- Potential dual use of the toolset could be applied to the education to support in-class learning of computer science and computing concepts for early programmers. The

system can also be used to develop critical thinking and problem solving abilities in children.

- Proposals must reflect team expertise in training, education, and professional game and graphic novel production. TEAMS THAT DO NOT REFLECT THESE SKILLSETS WILL NOT BE CONSIDERED.

### References:

Eguchi, A. & Reyes, J. (2008). Engage and Motivate Non-Computer Science Major Undergraduates Using Educational Robotics. In K. McFerrin et al. (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2008* (pp. 2572-2576). Chesapeake, VA: AACE.

Delman, A., A. Ishak, L. Goetz, M. Kunin, Y. Langsam and T. Raphan. "Development of a System for Teaching CS1 in C/C++ With Lego NXT Robots." *Proceedings of the 2010 International Conference on Frontiers in Education: Computer Science and Computer Engineering (FECS'10: July 12-15, United States)*.

J.B. Weinberg, J.C. Pettibone, S.L. Thomas, M.L. Stephen, & C. Stein, "The Impact of Robot Projects on Girls' Attitudes Toward Science and Engineering", *Robotics Science and Systems (RSS) Workshop on Research in Robots for Education*, Georgia Institute of Technology, Atlanta, GA, June 30th, 2007, published on the web at <http://www.roboteducation.org/rss-2007/>.

M. Mataric, N. Koenig, and D. Feil-Seifer, "Materials for Enabling Hands-on Robotics and STEM Education," *Proceedings of the AAAI Spring Symposium on Robots and Robot Venues: Resources for AI Education*, Stanford, CA, March 2007.

I. Verner and D. Ahlgren, "Conceptualizing Educational Approaches in Introductory Robots", *International Journal of Electrical Engineering Education*, Vol. 41, No. 3, 2004, pp. 183-201

E. Matson, S. DeLoach, & R. Pauly. "Building Interest in Math and Science for Rural and Underserved Elementary School Children Using Robots." *Journal of STEM Education: Innovations and Research*, Vol 5, No 3 (2004).

R. Brook Osborne, A. J. Thomas, & J. R.N. Forbes (2010). "Teaching with robots: a service-learning approach to mentor training". In *Proceedings of the 41st ACM technical symposium on Computer science education* (SIGCSE '10). ACM, New York, NY, USA, 172-176.

G. Nugent, B. Barker, N. Grandgenett, & V. Adamchuk. "The use of digital manipulatives in k-12: robotics, GPS/GIS and programming", *Frontiers in Education Conference, 2009. FIE '09. 39th IEEE*, vol., no., pp.1-6, 18-21 Oct. 2009.

B. S. Barker & J. Ansoorge. "Robotics as Means to Increase Achievement Scores in an Informal Learning Environment", *Journal of Research on Technology in Education*, 39(3), 229–243.

Jones, J.L., Flynn, A.M., *Mobile Robots: Inspiration to Implementation*, A K Peters, 1993.

**Keywords:** Robotics, intelligent tutors, education, pedagogy, programming, computer science, STEM, mobile device, IOS/ANDROID applications

**X. APPENDICES TO THE ED/IES SBIR PHASE I GAMES PROPOSAL**

Offerors to ED/IES should include the required and optional Appendices in section X.1. as pages that follow the Project Narrative – Technical content.

Offerors to DARPA SBIR should complete the Appendices below under section X.2. and include the Appendices A through D as a PDF after the conclusion of the Project Narrative – Technical content. Appendices G, H, and I must be submitted online.

## **X.1. ED/IES Appendices**

### **ED/IES Appendix A: Human Subjects**

#### **3452.224-71 Notice About Research Activities Involving Human Subjects (MAY 2011)**

(a) *Applicable Regulations.* In accordance with Department of Education regulations on the protection of human subjects, title 34, Code of Federal Regulations, part 97 (“the regulations”), the contractor, any subcontractors, and any other entities engaged in covered (nonexempt) research activities are required to establish and maintain procedures for the protection of human subjects.

(b) *Definitions.*

(1) The regulations define research as “a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge.” (34 CFR 97.102(d)). If an activity follows a deliberate plan designed to develop or contribute to generalizable knowledge, it is research. Research includes activities that meet this definition, whether or not they are conducted under a program considered research for other purposes. For example, some demonstration and service programs may include research activities.

(2) The regulations define a human subject as a living individual about whom an investigator (whether professional or student) conducting research obtains data through intervention or interaction with the individual, or obtains identifiable private information. (34 CFR 97.102(f)). The definition of a human subject is met if an activity involves obtaining—

(i) Information about a living person by—

(A) Manipulating that person’s environment, as might occur when a new instructional technique is tested; or

(B) Communicating or interacting with the individual, as occurs with surveys and interviews; or

(ii) Private information about a living person in such a way that the information can be linked to that individual (the identity of the subject is or may be readily determined by the investigator or associated with the information). Private information includes information about behavior that occurs in a context in which an individual can reasonably expect that no observation or recording is taking place, and information that has been provided for specific purposes by an individual and that an individual can reasonably expect will not be made public (for example, a school health record).

(c) *Exemptions.* The regulations provide exemptions from coverage for activities in which the only involvement of human subjects will be in one or more of the categories set forth in 34 CFR 97.101(b)(1)–(6). However, if the research subjects are children, the exemption at 34 CFR 97.101(b)(2) (i.e., research involving the use of educational tests, survey procedures, interview procedures or observation of public behavior) is modified by 34 CFR 97.401(b), as explained in paragraph (d) of this provision. Research studies that are conducted under a Federal statute that requires without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter, e.g., the Institute of Education

Sciences confidentiality statute, 20 U.S.C. 9573, are exempt under 34 CFR 97.101(b)(3)(ii).

(d) *Children as research subjects.*

Paragraph (a) of 34 CFR 97.402 of the regulations defines children as “persons who have not attained the legal age for consent to treatments or procedures involved in the research, under the applicable law of the jurisdiction in which the research will be conducted.” Paragraph (b) of 34 CFR 97.401 of the regulations provides that, if the research involves children as subjects—

(1) The exemption in 34 CFR 97.101(b)(2) does not apply to activities involving—

- (i) Survey or interview procedures involving children as subjects; or
- (ii) Observations of public behavior of children in which the investigator or investigators will participate in the activities being observed.

(2) The exemption in 34 CFR 97.101(b)(2) continues to apply, unmodified by 34 CFR 97.401(b), to—

- (i) Educational tests; and
- (ii) Observations of public behavior in which the investigator or investigators will not participate in the activities being observed.

(e) *Proposal Instructions.* An offeror proposing to do research that involves human subjects must provide information to the Department on the proposed exempt and nonexempt research activities. The offeror should submit this information as an attachment to its technical proposal. No specific page limitation applies to this requirement, but the offeror should be brief and to the point.

(1) For exempt research activities involving human subjects, the offeror should identify the exemption(s) that applies and provide sufficient information to allow the Department to determine that the designated exemption(s) is appropriate. Normally, the narrative on the exemption(s) can be provided in one paragraph.

(2) For nonexempt research activities involving human subjects, the offeror must cover the following seven points in the information it provides to the Department:

(i) *Human subjects’ involvement and characteristics:* Describe the characteristics of the subject population, including their anticipated number, age range, and health status. Identify the criteria for inclusion or exclusion of any subpopulation. Explain the rationale for the involvement of special classes of subjects, such as children, children with disabilities, adults with disabilities, persons with mental disabilities, pregnant women, institutionalized individuals, or others who are likely to be vulnerable.

(ii) *Sources of materials:* Identify the sources of research material obtained from or about individually identifiable living human subjects in the form of specimens, records, or data.

(iii) *Recruitment and informed consent:*  
Describe plans for the recruitment of subjects and the consent procedures to be followed.

(iv) *Potential risks*: Describe potential risks (physical, psychological, social, financial, legal, or other) and assess their likelihood and seriousness. Where appropriate, discuss alternative treatments and procedures that might be advantageous to the subjects.

(v) *Protection against risk*: Describe the procedures for protecting against or minimizing potential risks, including risks to confidentiality, and assess their likely effectiveness. Where appropriate, discuss provisions for ensuring necessary medical or professional intervention in the event of adverse effects to the subjects. Also, where appropriate, describe the provisions for monitoring the data collected to ensure the safety of the subjects.

(vi) *Importance of knowledge to be gained*:

Discuss why the risks to the subjects are reasonable in relation to the importance of the knowledge that may reasonably be expected to result.

(vii) *Collaborating sites*: If research involving human subjects will take place at collaborating site(s), name the sites and briefly describe their involvement or role in the research. Normally, the seven-point narrative can be provided in two pages or less.

(3) If a reasonable potential exists that a need to conduct research involving human subjects may be identified after award of the contract and the offeror's proposal contains no definite plans for such research, the offeror should briefly describe the circumstances and nature of the potential research involving human subjects.

(f) *Assurances and Certifications*.

(1) In accordance with the regulations and the terms of this provision, all contractors and subcontractors that will be engaged in covered human subjects research activities shall be required to comply with the requirements for Assurances and Institutional Review Board approvals, as set forth in the contract clause 3452.224–72 (Research activities involving human subjects).

(2) The contracting officer reserves the right to require that the offeror have or apply for the assurance and provide documentation of Institutional Review Board (IRB) approval of the research prior to award.

(g)(1) The regulations, and related information on the protection of human research subjects, can be found on the Department's protection of human subjects in research Web site: <http://ed.gov/about/offices/list/ocfo/humansub.html>.

(2) Offerors may also contact the following office to obtain information about the regulations for the protection of human subjects and related policies and guidelines:

Protection of Human Subjects Coordinator,  
U.S. Department of Education,  
Office of the Chief Financial Officer,  
Financial Management Operations,  
400 Maryland Avenue, SW, Washington, DC 20202–4331,  
Telephone: (202) 245-8090.

(End of Provision)

OFFERORS DO NOT NEED AN ASSURANCE OR IRB APPROVAL AS A CONDITION OF OFFERING FOR THIS CONTRACT.

Additionally, contractors must comply with the Family Educational Rights and Privacy Act (FERPA), 20 U.S.C. § 1232g, 34 CFR Part 99. FERPA is a law that protects the privacy of students' education records. Under FERPA an educational agency or institution may not have a policy or practice of disclosing education records, or personally identifiable information from education records, without the prior written consent of the parents of students who are or who have been in attendance, unless the disclosure meets one of the exceptions noted in the law. (Once a student reaches 18 years of age or attends a postsecondary institution, written consent must be obtained from the student.)

For additional information or technical assistance, you may call (202) 260-3887 (voice). Individuals who use TDD may call the Federal Information Relay Service at 1-800-877-8339. Or you may contact us at the following address:

Family Policy Compliance Office -- U.S. Department of Education  
400 Maryland Avenue, SW -- Washington, D.C. 20202-5920

Information is also available on the ED website at:  
<http://www.ed.gov/policy/gen/guid/fpc/index.html>



**ED/IES Appendix B: Similar or Closely Related Awards or Proposals**

If the small business concern has received ANY prior award(s) from any Federal agency *for similar or closely related research*, the ED/IES offeror must provide the name of the awarding agency, the date of award, the funding agreement number, the amount, and the project title in Appendix B. As well, the offeror must describe the technical differences and reasons why the proposed new Phase I (and eventually Phase II) research is different from the research conducted under prior awards. This information shall be included in Appendix G.

If an offeror has submitted identical proposals containing a significant amount of essentially equivalent work, a statement must be included in Appendix B indicating: the name and address of agencies to which proposal(s) was/were submitted; the date of the proposal submission and date of award; the title, number and date of SBIR program solicitation under which proposal was/were submitted; the applicable research priority in the program solicitation for each SBIR proposal submitted or award received; the titles of research projects; the name and title of the principal investigator for each proposal submitted.

This proposal information **is not** counted toward the 15-page limit of the project narrative.

**ED/IES Appendix C: Biographical Summary Certification and Resumé Pages**  
**REQUIRED**

For each individual who is listed and whose biographical summary is included in the 15-page narrative of the ED/IES proposal, two separate pages must appear in Appendix C with the following information: (1) a certification page, and (2) a 1-page resumé.

**(1) Certifications (1-page)**

Each individual on the project team must certify the following statement by providing the information below:

*"I hereby certify that this information is accurate to the best of knowledge and belief."*

Individual's Name (TYPED):

Written signature: \_\_\_\_\_

Date:

Each employee of the offeror with the authority to bind the offeror must certify the following statement by providing the information below:

*"I hereby certify that (FILL IN THE COMPANY NAME) has verified the foregoing information that is accurate to the best of our knowledge and belief."*

Individual's Name (TYPED):

Individual's Title (TYPED):

Written signature: \_\_\_\_\_

Date:

**(2) Resumé (1-page maximum)**

Each key individual on the project team must include a 1-page resumé in Appendix C. The resumé should include relevant educational qualifications, experience, and bibliographic information including pertinent peer-reviewed publications.

This proposal information **is not** counted toward the 15-page limit of the project narrative.

**ED/IES Appendix D: Letter of Agreement to Participate in the Phase I R/R&D  
REQUIRED**

In Appendix D, offerors must provide one letter of agreement from an education setting to participate in the Phase I pilot research. The letter must not exceed one (1) page in length.

This proposal information **is not** counted toward the 15-page limit of the project narrative.

**ED/IES Appendix E: Documentation and Status of Phase II Awards from the Previous 7 Years**

If the small business or the principal investigator (when at the small business concern or previously at a different firm) has received ANY prior Phase II awards from any Federal agency in the prior 7 fiscal years, the following information must be provided in Appendix E for each award:

- Name of the awarding agency and office
- Dates of award (start and finish)
- Contract/grant number
- Award amount
- Title of the project
- A short description of the product that was developed as a result of the award
- Details on the commercialization history and current status of the product, including:
  - details on any follow-on agreements or partnerships
  - the sales and marketing strategy for how the product is made available for purchase (e.g., website, trade magazines, licensing agreements)
  - the sales history and revenue generated from the product
  - data on the number of past and current users (e.g., schools, students)
- Details on peer-reviewed journal publications resulting from the R/R&D of the product

This proposal information **is not** counted toward the 15-page limit of the project narrative.

**ED/IES Appendix F: Letters to Endorse the Proposed Game (Maximum of 3 Letters)**

In Appendix F, ED/IES offerors may provide up to three (3) letters to endorse both the significance and the potential commercial application of the proposed game. Each letter must not exceed 1-page in length. Letters must adhere to the requirements as set forth in the solicitation.

**Notes:**

Strong letters of endorsement (1) state the endorser's qualifications (e.g., why does this individual/organization have expertise in the area of the proposed game?), (2) refer to the specifics of the proposal, and (3) may specify any future roles or involvement with the project down the line (e.g., Phase II or Phase III) should it be successful.

Letters endorsing the significance and potential commercial application of the proposed game may come from individual experts, associations, or organizations in the specific field of interest, future potential commercial partners or investors, or from school practitioners who would use or possibly purchase the product or tool if it were commercially available.

Strong letters of endorsement must be from organizations or individuals not affiliated with the project. Offerors should *not* include letters of endorsement from members of the project team, such as consultants or subcontractors, as the confirmation of involvement of members of the project team is to be provided in the Biographical Summary of Key Personnel (Section III.F.4 or Section III.G.4) and can be discussed in terms of how the project is managed. Offerors should *not* include letters from banks or personal lenders as a means to demonstrate the potential availability of Phase III financing.

This proposal information **is not** counted toward the 15-page limit.

**ED/IES Appendix G: Budget  
REQUIRED**

In Appendix G, ED/IES offerors shall provide a narrative budget justification and a budget spreadsheet for the Phase I period. For the narrative budget justification, the offeror should provide a justification for all costs associated with the proposed project and describe why the costs are within the scope of the proposed activities.

For the budget spreadsheet:

- information should be displayed in a spreadsheet (SAMPLE BUDGET is below),
- all personnel should be listed by name,
- the number of hours assigned to the project for personnel should be included,
- hourly rates for personnel should be included,
- labor costs per person should be included,
- funds for travel funds must be justified and related to the needs of the project, and
- cost sharing should not be included.

The Phase I Budget must not exceed \$150,000 for a 6-month project, including subcontracts, indirect costs, and fees but excluding any proposed cost sharing.

The SBA has stated that SBIR funding agencies are to provide for a reasonable fee or profit on SBIR contracts including grants, consistent with normal profit margins provided to profit-making firms for R/R&D work (SBIR "Policy Directive").

**PHASE I BUDGET INFORMATION**  
**(MAXIMUM OF \$150,000 FOR 6-MONTHS)**

- **Budget Narrative Justification for Phase I (limit 1-page for the narrative):**
- **Spreadsheet for Phase I (use the template below):**

Price Category	HOURS	RATE	TOTAL
Labor			
Name & Title	_____ x	\$ _____	\$ _____
Name & Title	_____ x	\$ _____	\$ _____
Name & Title	_____ x	\$ _____	\$ _____
Name & Title	_____ x	\$ _____	\$ _____
Name & Title	_____ x	\$ _____	\$ _____
Labor Overhead	Rate _____ %		\$ _____
Fringe Benefits	_____ %		\$ _____
Total Direct Cost			\$ _____
Other Direct Costs			
Travel			\$ _____
Copy/print/message			\$ _____
Consultant			\$ _____
Subcontractors( <i>no more than 33% of the total Phase 1 price</i> )			\$ _____
Total ODCs			\$ _____
Total Direct Costs			\$ _____
G&A	Rate _____ %		\$ _____
Total Cost			\$ _____
Profit	Rate _____ %		\$ _____
TOTAL PRICE			\$ _____

**ED/IES Appendix H: Required Contracts Information**

In addition to registering in SAM, offerors must complete the certifications contained in Appendices F and G. Offerors without completed certifications in Appendices F and G will not be eligible for an award.

**1. 310-1 REPRESENTATION AUTHORITY (JANUARY 2005)**

Based on a FAR change, specifically in reference to FAR clauses 52.204-8, Annual Representations and Certifications, and 52.212-3, Offeror Representations and Certifications - Commercial Items, vendors are required to provide Online Representations and Certifications now available at SAM (<https://sam.gov>), as required by the Federal Acquisition Regulations (FAR). Vendors should go to <https://sam.gov> to complete the requirements of the solicitation. However, all FAR and ED clauses NOT listed in SAM's Online Representation and Certifications should still be completed. The offeror makes the following Representations and Certifications as part of its proposal (check or complete all appropriate boxes or blanks on the following pages).

_____	_____
(Name of Offeror)	(RFP No.)
_____	_____
(Signature of Authorized Individual)	(Date)

\_\_\_\_\_  
(TYPED NAME OF AUTHORIZED INDIVIDUAL) Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001. The Representations and Certifications must be executed by an individual authorized to bind the offeror.

**2. 310-16 POST EMPLOYMENT CONFLICT OF INTEREST (MARCH 1985)**

The contractor certifies that in developing a proposal in response to the solicitation for this contract, it has not utilized the services of any former Education Department (ED) employee who, while working for the Government, participated personally and substantially in, or was officially responsible for, the development or drafting of the solicitation for this contract. The contractor further certifies that it did not utilize the services of such an ED employee in assisting or representing the offeror at negotiations for this contract.

**3. 310-6 DUPLICATION OF COST (MARCH 1985)**

The offeror represents and certifies that any charges contemplated and included in its estimate of cost for performance are not duplicative of any charges against any other Government contract, subcontract, or other Government source.

**4. 52.222-54 Employment Eligibility Verification (July 2012)**

(a) *Definitions.* As used in this clause—

“Commercially available off-the-shelf (COTS) item”—

(1) Means any item of supply that is—

(i) A commercial item (as defined in paragraph (1) of the definition at 2.101);

(ii) Sold in substantial quantities in the commercial marketplace; and

(iii) Offered to the Government, without modification, in the same form in which it is sold in the commercial marketplace; and



(2) Does not include bulk cargo, as defined in section 3 of the Shipping Act of 1984 (46 U.S.C. App. 1702), such as agricultural products and petroleum products. Per 46 CFR 525.1(c)(2), “bulk cargo” means cargo that is loaded and carried in bulk onboard ship without mark or count, in a loose unpackaged form, having homogenous characteristics. Bulk cargo loaded into intermodal equipment, except LASH or Seabee barges, is subject to mark and count and, therefore, ceases to be bulk cargo.

“Employee assigned to the contract” means an employee who was hired after November 6, 1986 (after November 27, 2009, in the Commonwealth of the Northern Mariana Islands), who is directly performing work, in the United States, under a contract that is required to include the clause prescribed at 22.1803. An employee is not considered to be directly performing work under a contract if the employee—

- (1) Normally performs support work, such as indirect or overhead functions; and
- (2) Does not perform any substantial duties applicable to the contract.

“Subcontract” means any contract, as defined in 2.101, entered into by a subcontractor to furnish supplies or services for performance of a prime contract or a subcontract. It includes but is not limited to purchase orders, and changes and modifications to purchase orders.

“Subcontractor” means any supplier, distributor, vendor, or firm that furnishes supplies or services to or for a prime Contractor or another subcontractor.

“United States,” as defined in 8 U.S.C. 1101(a)(38), means the 50 States, the District of Columbia, Puerto Rico, Guam, the Commonwealth of the Northern Mariana Islands, and the U.S. Virgin Islands.

*(b) Enrollment and verification requirements.*

(1) If the Contractor is not enrolled as a Federal Contractor in E-Verify at time of contract award, the Contractor shall—

- (i) *Enroll.* Enroll as a Federal Contractor in the E-Verify program within 30 calendar days of contract award;
- (ii) *Verify all new employees.* Within 90 calendar days of enrollment in the E-Verify program, begin to use E-Verify to initiate verification of employment eligibility of all new hires of the Contractor, who are working in the United States, whether or not assigned to the contract, within 3 business days after the date of hire (but see paragraph (b)(3) of this section); and
- (iii) *Verify employees assigned to the contract.* For each employee assigned to the contract, initiate verification within 90 calendar days after date of enrollment or within 30 calendar days of the employee’s assignment to the contract, whichever date is later (but see paragraph (b)(4) of this section).

(2) If the Contractor is enrolled as a Federal Contractor in E-Verify at time of contract award, the Contractor shall use E-Verify to initiate verification of employment eligibility of—

- (i) *All new employees.*
  - (A) *Enrolled 90 calendar days or more.* The Contractor shall initiate verification of all new hires of the Contractor, who are working in the United States, whether or not assigned to the contract within 3 business days after the date of hire (but see paragraph (b)(3) of this section); or
  - (B) *Enrolled less than 90 calendar days.* Within 90 calendar days after enrollment as a Federal Contractor in E-Verify, the Contractor shall initiate verification of all new hires of the Contractor, who are working in the United States, whether or not assigned to the contract, within 3 business days after the date of hire (but see paragraph (b)(3) of this section); or
- (ii) *Employees assigned to the contract.* For each employee assigned to the contract, the Contractor shall initiate verification within 90 calendar days after date of contract award or within 30 days after assignment to the contract, whichever date is later (but see paragraph (b)(4) of this section).

- (3) If the Contractor is an institution of higher education (as defined at 20 U.S.C. 1001(a)); a State or local government or the government of a Federally recognized Indian tribe; or a surety performing under a takeover agreement entered into with a Federal agency pursuant to a performance bond, the Contractor may choose to verify only employees assigned to the contract, whether existing employees or new hires. The Contractor shall follow the applicable verification requirements at (b)(1) or (b)(2), respectively, except that any requirement for verification of new employees applies only to new employees assigned to the contract.
- (4) *Option to verify employment eligibility of all employees.* The Contractor may elect to verify all existing employees hired after November 6, 1986 (after November 27, 2009, in the Commonwealth of the Northern Mariana Islands), rather than just those employees assigned to the contract. The Contractor shall initiate verification for each existing employee working in the United States who was hired after November 6, 1986 (after November 27, 2009, in the Commonwealth of the Northern Mariana Islands), within 180 calendar days of—
- (i) Enrollment in the E-Verify program; or
  - (ii) Notification to E-Verify Operations of the Contractor's decision to exercise this option, using the contact information provided in the E-Verify program Memorandum of Understanding (MOU).
- (5) The Contractor shall comply, for the period of performance of this contract, with the requirement of the E-Verify program MOU.
- (i) The Department of Homeland Security (DHS) or the Social Security Administration (SSA) may terminate the Contractor's MOU and deny access to the E-Verify system in accordance with the terms of the MOU. In such case, the Contractor will be referred to a suspension or debarment official.
  - (ii) During the period between termination of the MOU and a decision by the suspension or debarment official whether to suspend or debar, the Contractor is excused from its obligations under paragraph (b) of this clause. If the suspension or debarment official determines not to suspend or debar the Contractor, then the Contractor must reenroll in E-Verify.
- (c) *Web site.* Information on registration for and use of the E-Verify program can be obtained via the Internet at the Department of Homeland Security Web site: <http://www.dhs.gov/E-Verify>.
- (d) *Individuals previously verified.* The Contractor is not required by this clause to perform additional employment verification using E-Verify for any employee—
- (1) Whose employment eligibility was previously verified by the Contractor through the E-Verify program;
  - (2) Who has been granted and holds an active U.S. Government security clearance for access to confidential, secret, or top secret information in accordance with the National Industrial Security Program Operating Manual; or
  - (3) Who has undergone a completed background investigation and been issued credentials pursuant to Homeland Security Presidential Directive (HSPD) -12, Policy for a Common Identification Standard for Federal Employees and Contractors.
- (e) *Subcontracts.* The contractor shall include the requirements of this clause, including this paragraph (e) (appropriately modified for identification of the parties), in each subcontract that—
- (1) *Is for—*
    - (i) Commercial or noncommercial services (except for commercial services that are part of the purchase of a COTS item (or an item that would be a COTS item, but for minor modifications), performed by the COTS provider, and are normally provided for that COTS item); or
    - (ii) Construction;
  - (2) Has a value of more than \$3,000; and

(3) Includes work performed in the United States.  
(End of Clause)

#### **5. 3452.209-70 Conflict of Interest Certification (MAY 2011)**

(a) (1) The contractor, subcontractor, employee, or consultant, by signing the form in this clause, certifies that, to the best of its knowledge and belief, there are no relevant facts or circumstances that could give rise to an organizational or personal conflict of interest, (see FAR Subpart 9.5 for organizational conflicts of interest) (or apparent conflict of interest), for the organization or any of its staff, and that the contractor, subcontractor, employee, or consultant has disclosed all such relevant information if such a conflict of interest appears to exist to a reasonable person with knowledge of the relevant facts (or if such a person would question the impartiality of the contractor, subcontractor, employee, or consultant). Conflicts may arise in the following situations: (i) Unequal access to information. A potential contractor, subcontractor, employee, or consultant has access to non-public information through its performance on a government contract. (ii) Biased ground rules. A potential contractor, subcontractor, employee, or consultant has worked, in one government contract, or program, on the basic structure or ground rules of another government contract. (iii) Impaired objectivity. A potential contractor, subcontractor, employee, or consultant, or member of their immediate family (spouse, parent, or child) has financial or other interests that would impair, or give the appearance of impairing, impartial judgment in the evaluation of government programs, in offering advice or recommendations to the government, or in providing technical assistance or other services to recipients of Federal funds as part of its contractual responsibility. "Impaired objectivity" includes but is not limited to the following situations that would cause a reasonable person with knowledge of the relevant facts to question a person's objectivity: (A) Financial interests or reasonably foreseeable financial interests in or in connection with products, property, or services that may be purchased by an educational agency, a person, organization, or institution in the course of implementing any program administered by the Department; (B) Significant connections to teaching methodologies or approaches that might require or encourage the use of specific products, property, or services; or (C) Significant identification with pedagogical or philosophical viewpoints that might require or encourage the use of a specific curriculum, specific products, property, or services. (2) Offerors must provide the disclosure described above on any actual or potential conflict of interest (or apparent conflict of interest) regardless of their opinion that such a conflict or potential conflict (or apparent conflict of interest) would not impair their objectivity. (3) In a case in which an actual or potential conflict (or apparent conflict of interest) is disclosed, the Department will take appropriate actions to eliminate or address the actual or potential conflict, including but not limited to mitigating or neutralizing the conflict, when appropriate, through such means as ensuring a balance of views, disclosure with the appropriate disclaimers, or by restricting or modifying the work to be performed to avoid or reduce the conflict. In this clause, the term "potential conflict" means reasonably foreseeable conflict of interest. (b) The contractor, subcontractor, employee, or consultant agrees that if "impaired objectivity", or an actual or potential conflict of interest (or apparent conflict of interest) is discovered after the award is made, it will make a full disclosure in writing to the contracting officer. This disclosure shall include a description of actions that the contractor has taken or proposes to take to avoid, mitigate, or neutralize the actual or potential conflict (or apparent conflict of interest). (c) Remedies. The Government may terminate this contract for convenience, in whole or in part, if it deems such termination necessary to avoid the appearance of a conflict of interest. If the contractor was aware of a potential conflict of interest prior to award or discovered an actual or potential conflict after

award and did not disclose or misrepresented relevant information to the contracting officer, the Government may terminate the contract for default, or pursue such other remedies as may be permitted by law or this contract. These remedies include imprisonment for up to five years for violation of 18 U.S.C. 1001 and fines of up to \$5000 for violation of 31 U.S.C. 3802. Further remedies include suspension or debarment from contracting with the Federal government. The contractor may also be required to reimburse the Department for costs the Department incurs arising from activities related to conflicts of interest. An example of such costs would be those incurred in processing Freedom of Information Act requests related to a conflict of interest. (d) In cases where remedies short of termination have been applied, the contractor, subcontractor, employee, or consultant agrees to eliminate the organizational conflict of interest, or mitigate it to the satisfaction of the contracting officer. (e) The contractor further agrees to insert in any subcontract or consultant agreement hereunder, provisions that conform substantially to the language of this clause, including specific mention of potential remedies and this paragraph (e). (f) Conflict of Interest Certification. The offeror, \_\_\_\_\_, hereby certifies that, to the best of its knowledge and belief, there are no present or currently planned interests (financial, contractual, organizational, or otherwise) relating to the work to be performed under the contract or task order resulting from Request for Proposal No. \_\_\_\_\_ that would create any actual or potential conflict of interest (or apparent conflicts of interest) (including conflicts of interest for immediate family members: spouses, parents, children) that would impinge on its ability to render impartial, technically sound, and objective assistance or advice or result in it being given an unfair competitive advantage. In this clause, the term "potential conflict" means reasonably foreseeable conflict of interest. The offeror further certifies that it has and will continue to exercise due diligence in identifying and removing or mitigating, to the Government's satisfaction, such conflict of interest (or apparent conflict of interest). Offeror's Name \_\_\_\_\_  
RFP/Contract No. \_\_\_\_\_  
Signature \_\_\_\_\_  
Title \_\_\_\_\_  
Date \_\_\_\_\_

#### 6. 3452.209-71 CONFLICT OF INTEREST (MAY 2011)

(a) (1) The contractor, subcontractor, employee, or consultant, has certified that, to the best of its knowledge and belief, there are no relevant facts or circumstances that could give rise to an organizational or personal conflict of interest, (see FAR Subpart 9.5 for organizational conflicts of interest), (or apparent conflict of interest) for the organization or any of its staff, and that the contractor, subcontractor, employee, or consultant has disclosed all such relevant information if such a conflict of interest appears to exist to a reasonable person with knowledge of the relevant facts (or if such a person would question the impartiality of the contractor, subcontractor, employee, or consultant). Conflicts may arise in the following situations: (i) Unequal access to information - A potential contractor, subcontractor, employee, or consultant has access to non-public information through its performance on a government contract. (ii) Biased ground rules - A potential contractor, subcontractor, employee, or consultant has worked, in one government contract, or program, on the basic structure or ground rules of another government contract. (iii) Impaired objectivity - A potential contractor, subcontractor, employee, or consultant, or member of their immediate family (spouse, parent, or child) has financial or other interests that would impair, or give the appearance of impairing, impartial judgment in the evaluation of government programs, in offering advice or recommendations to the government, or in providing technical assistance or other services to recipients of Federal funds as part of its contractual responsibility. "Impaired

objectivity" includes but is not limited to the following situations that would cause a reasonable person with knowledge of the relevant facts to question a person's objectivity: (A) Financial interests or reasonably foreseeable financial interests in or in connection with products, property, or services that may be purchased by an educational agency, a person, organization, or institution in the course of implementing any program administered by the Department; (B) Significant connections to teaching methodologies that might require or encourage the use of specific products, property, or services; or (C) Significant identification with pedagogical or philosophical viewpoints that might require or encourage the use of a specific curriculum, specific products, property, or services. (2) Offerors must provide the disclosure described above on any actual or potential conflict (or apparent conflict of interest) of interest regardless of their opinion that such a conflict or potential conflict (or apparent conflict of interest) would not impair their objectivity. (3) In a case in which an actual or potential conflict (or apparent conflict of interest) is disclosed, the Department will take appropriate actions to eliminate or address the actual or potential conflict (or apparent conflict of interest), including but not limited to mitigating or neutralizing the conflict, when appropriate, through such means as ensuring a balance of views, disclosure with the appropriate disclaimers, or by restricting or modifying the work to be performed to avoid or reduce the conflict. In this clause, the term "potential conflict" means reasonably foreseeable conflict of interest. (b) The contractor, subcontractor, employee, or consultant agrees that if "impaired objectivity", or an actual or potential conflict of interest (or apparent conflict of interest) is discovered after the award is made, it will make a full disclosure in writing to the contracting officer. This disclosure shall include a description of actions that the contractor has taken or proposes to take, after consultation with the contracting officer, to avoid, mitigate, or neutralize the actual or potential conflict (or apparent conflict of interest). (c) Remedies. The Government may terminate this contract for convenience, in whole or in part, if it deems such termination necessary to avoid the appearance of a conflict of interest. If the contractor was aware of a potential conflict of interest prior to award or discovered an actual or potential conflict (or apparent conflict of interest) after award and did not disclose or misrepresented relevant information to the contracting officer, the Government may terminate the contract for default, or pursue such other remedies as may be permitted by law or this contract. These remedies include imprisonment for up to five years for violation of 18 U.S.C. 1001 and fines of up to \$5000 for violation of 31 U.S.C. 3802. Further remedies include suspension or debarment from contracting with the Federal government. The contractor may also be required to reimburse the Department for costs the Department incurs arising from activities related to conflicts of interest. An example of such costs would be those incurred in processing Freedom of Information Act requests related to a conflict of interest. (d) In cases where remedies short of termination have been applied, the contractor, subcontractor, employee, or consultant agrees to eliminate the organizational conflict of interest, or mitigate it to the satisfaction of the contracting officer. (e) The contractor further agrees to insert in any subcontract or consultant agreement hereunder, provisions that conform substantially to the language of this clause, including specific mention of potential remedies and this paragraph (e). (End of Clause)

## **7. Conflict of Interest Plan**

The offeror shall submit a Conflict of Interest Plan in Appendix G.7.B., providing details on its policies and procedures to identify and avoid potential organizational or personal conflicts of interest (or apparent conflicts of interest). The Plan should also address procedures taken to neutralize or mitigate such conflicts, if they have not been or cannot be avoided. The Plan should indicate that such policies and procedures are operative throughout the period of performance of the contract.

The policies should address, at a minimum, gifts, outside activities, financial interests, or other significant connections or identifications that would establish, or give the appearance of establishing, a conflict of interest. A method for periodically reviewing financial interests of employees, subcontractors and consultants, and their immediate families, in order to assess actual or apparent conflicts of interest, should be included in the plan. In this clause, the term "potential conflict" means reasonably foreseeable conflict of interest. The thoroughness, completeness and effectiveness of the Plan shall be evaluated as part of the offeror's overall proposal. The Plan will be incorporated into the contract awarded to the successful offeror. Offerors and all proposed subcontractors/consultants shall complete the Conflict of Interest Certification from EDAR 3452.209-70, provided in the clause section, and include in their business proposal.

**8. 3452.239-72 Department Security Requirements (MAY 2011)**

(a) The contractor and its subcontractors shall comply with Department security policy requirements as set forth in the "Bidder's Security Package: Security Requirements for Contractors Doing Business with the Department of Education" at <http://www.ed.gov/fund/contract/about/bsp.html>.

(b) The following are the contractor employee positions required under this contract and their designated risk levels:

High Risk (HR): [Specify HR positions.]

Moderate Risk (MR): [Specify MR positions.]

Low Risk (LR): [Specify LR positions.]

(c) All contractor employees must undergo personnel security screening if they will be employed for 30 days or more, in accordance with Departmental Directive OM:5-101, "Contractor Employee Personnel Security Screenings." The type of screening and the timing of the screening will depend upon the nature of the contractor position, the type of data to be accessed, and the type of information technology (IT) system access required. Personnel security screenings will be commensurate with the risk and magnitude of harm the individual could cause.

(d) The contractor shall—

(1) Ensure that all non-U.S. citizen contractor employees are lawful permanent residents of the United States or have appropriate work authorization documents as required by the Department of Homeland Security, Bureau of Immigration and Appeals, to work in the United States.

(2) Ensure that no employees are assigned to high risk designated positions prior to a completed preliminary screening.

(3) Submit all required personnel security forms to the contracting officer's representative (COR) within 24 hours of an assignment to a Department contract and ensure that the forms are complete.

(4) Ensure that no contractor employee is placed in a higher risk position than that for which he or she was previously approved, without the approval of the contracting officer or the COR, the Department personnel security officer, and the Department computer security officer.

(5) Ensure that all contractor employees occupying high-risk designated positions submit forms for reinvestigation every five years for the duration of the contract or if there is a break in service to a Department contract of 365 days or more.

(6) Report to the COR all instances of individuals seeking to obtain unauthorized access to any departmental IT system, or sensitive but unclassified and/or Privacy Act protected information.

(7) Report to the COR any information that raises an issue as to whether a contractor employee's eligibility for continued employment or access to Department IT systems, or sensitive

but unclassified and/or Privacy Act protected information, promotes the efficiency of the service or violates the public trust.

(8) Withdraw from consideration under the contract any employee receiving an unfavorable adjudication determination.

(9) Officially notify each contractor employee if he or she will no longer work on a Department contract.

(10) Abide by the requirements in Departmental Directive OM:5-101, "Contractor Employee Personnel Security Screenings."

(e) Further information including definitions of terms used in this clause and a list of required investigative forms for each risk designation are contained in Departmental Directive OM:5-101, "Contractor Employee Personnel Security Screenings" available at the Web site listed in the first paragraph of this clause.

(f) Failure to comply with the contractor personnel security requirements may result in a termination of the contract for default.

(End of Provision)

#### **9. 52.209-5 Certification Regarding Responsibility Matters (Apr 2010)**

(a)(1) The Offeror certifies, to the best of its knowledge and belief, that—

(i) The Offeror and/or any of its Principals—

(A) Are or are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;

(B) Have or have not, within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) contract or subcontract; violation of Federal or State antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, violating Federal criminal tax laws, or receiving stolen property (if offeror checks "have", the offeror shall also see 52.209-7, if included in this solicitation);

(C) Are or are not presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in paragraph (a)(1)(i)(B) of this provision;

(D) Have or have not, within a three-year period preceding this offer, been notified of any delinquent Federal taxes in an amount that exceeds \$3,000 for which the liability remains unsatisfied.

(1) Federal taxes are considered delinquent if both of the following criteria apply:

(i) *The tax liability is finally determined.* The liability is finally determined if it has been assessed. A liability is not finally determined if there is a pending administrative or judicial challenge. In the case of a judicial challenge to the liability, the liability is not finally determined until all judicial appeal rights have been exhausted.

(ii) *The taxpayer is delinquent in making payment.* A taxpayer is delinquent if the taxpayer has failed to pay the tax liability when full payment was due and required. A taxpayer is not delinquent in cases where enforced collection action is precluded.

(2) *Examples.*

(i) The taxpayer has received a statutory notice of deficiency, under I.R.C. § 6212, which entitles the taxpayer to seek Tax Court review of a proposed tax deficiency. This is not a delinquent tax because it is not a final tax liability. Should the taxpayer seek Tax Court

review, this will not be a final tax liability until the taxpayer has exercised all judicial appeal rights.

(ii) The IRS has filed a notice of Federal tax lien with respect to an assessed tax liability, and the taxpayer has been issued a notice under I.R.C. § 6320 entitling the taxpayer to request a hearing with the IRS Office of Appeals contesting the lien filing, and to further appeal to the Tax Court if the IRS determines to sustain the lien filing. In the course of the hearing, the taxpayer is entitled to contest the underlying tax liability because the taxpayer has had no prior opportunity to contest the liability. This is not a delinquent tax because it is not a final tax liability. Should the taxpayer seek tax court review, this will not be a final tax liability until the taxpayer has exercised all judicial appeal rights.

(iii) The taxpayer has entered into an installment agreement pursuant to I.R.C. § 6159. The taxpayer is making timely payments and is in full compliance with the agreement terms. The taxpayer is not delinquent because the taxpayer is not currently required to make full payment.

(iv) The taxpayer has filed for bankruptcy protection. The taxpayer is not delinquent because enforced collection action is stayed under 11 U.S.C. 362 (the Bankruptcy Code).

(ii) The Offeror has or has not, within a three-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.

(2) "Principal," for the purposes of this certification, means an officer, director, owner, partner, or a person having primary management or supervisory responsibilities within a business entity (*e.g.*, general manager; plant manager; head of a division or business segment; and similar positions).

This Certification Concerns a Matter Within the Jurisdiction of an Agency of the United States and the Making of a False, Fictitious, or Fraudulent Certification May Render the Maker Subject to Prosecution Under Section 1001, Title 18, United States Code.

(b) The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract award, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

(c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the Contracting Officer may render the Offeror nonresponsible.

(d) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this solicitation for default.

(End of provision)

#### **10. 52.209-7 Information Regarding Responsibility Matters (Feb 2012)**

(a) Definitions. As used in this provision—



“Administrative proceeding” means a non-judicial process that is adjudicatory in nature in order to make a determination of fault or liability (e.g., Securities and Exchange Commission Administrative Proceedings, Civilian Board of Contract Appeals Proceedings, and Armed Services Board of Contract Appeals Proceedings). This includes administrative proceeding at the Federal and State level but only in connection with performance of a Federal contract or grant. It does not include agency actions such as contract audits, site visits, corrective plans, or inspection of deliverables.

“Federal contracts and grants with total value greater than \$10,000,000” means—

- (1) The total value of all current, active contracts and grants, including all priced options; and
- (2) The total value of all current, active orders including all priced options under indefinite-delivery, indefinite-quantity, 8(a), or requirements contracts (including task and delivery and multiple-award Schedules).

“Principal” means an officer, director, owner, partner, or a person having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a division or business segment; and similar positions).

(b) The offeror ☐ has ☐ does not have current active Federal contracts and grants with total value greater than \$10,000,000.

(c) If the offeror checked “has” in paragraph (b) of this provision, the offeror represents, by submission of this offer, that the information it has entered in the Federal Awardee Performance and Integrity Information System (FAPIS) is current, accurate, and complete as of the date of submission of this offer with regard to the following information:

(1) Whether the offeror, and/or any of its principals, has or has not, within the last five years, in connection with the award to or performance by the offeror of a Federal contract or grant, been the subject of a proceeding, at the Federal or State level that resulted in any of the following dispositions:

- (i) In a criminal proceeding, a conviction.
- (ii) In a civil proceeding, a finding of fault and liability that results in the payment of a monetary fine, penalty, reimbursement, restitution, or damages of \$5,000 or more.
- (iii) In an administrative proceeding, a finding of fault and liability that results in—
  - (A) The payment of a monetary fine or penalty of \$5,000 or more; or
  - (B) The payment of a reimbursement, restitution, or damages in excess of \$100,000.
- (iv) In a criminal, civil, or administrative proceeding, a disposition of the matter by consent or compromise with an acknowledgment of fault by the Contractor if the proceeding could have led to any of the outcomes specified in paragraphs (c)(1)(i), (c)(1)(ii), or (c)(1)(iii) of this provision.

(2) If the offeror has been involved in the last five years in any of the occurrences listed in (c)(1) of this provision, whether the offeror has provided the requested information with regard to each occurrence.

(d) The offeror shall post the information in paragraphs (c)(1)(i) through (c)(1)(iv) of this provision in FAPIS as required through maintaining an active registration in the Central Contractor Registration database via <https://www.acquisition.gov> (see 52.204-7).

(End of provision)

This proposal information **is not** counted toward the 15-page limit of the project narrative.

**ED/IES Appendix I. Key Information for the Phase I Proposal**  
**REQUIRED**

In Appendix I, ED/IES offerors must provide:

**1. Key Information**

- Solicitation Number: ED-IES-13-R-0008
- Small Business name
- Project Title
- Small Business address, phone, fax, and website
- Small Business DUNS Number
- North American Industry Classification System Code (NAICS)
- Number of employees at the small business (on average during the past year)
- Typed name, signature, title, contact information (address, phone/fax, and email) and date of signature for the Principal Investigator
- Typed name, signature, title, contact information and date of signature for a representative authorized to represent the small business concern in negotiations
- Names and professional affiliations of all project team members

**2. Certifications**

The offeror must respond to the following certifications required by the Small Business Administration.

• **Small Business Certification –**

Does the offeror certify that it is a small business concern and meets the definition as stated in the program solicitation?

☐ Yes      ☐ No

• **Socially and Economically Disadvantaged SBC Certification –**

Does the offeror qualify as a socially and economically disadvantaged SBC and meet the definition as stated in this program solicitation?

☐ Yes      ☐ No

• **Woman-owned SBC Certification –**

Does the offeror qualify as a woman-owned SBC and meet the definition as stated in this program solicitation?

☐ Yes      ☐ No

• **HUBZone-owned SBC Certification –**

Does the offeror qualify as a HUBZone-owned SBC and meet the definition as stated in this solicitation?

☐ Yes      ☐ No

*The website listed below contains information about the SBA's HUBZone program:*

<http://www.sba.gov/hubzone/>

• **Service Disabled Veteran Owned Small Business Certification –**

Does the offeror qualify as a Service Disabled Veteran Owned Small Business?

☐ Yes      ☐ No

- **Manufacturing-Related Project Certification –**

If R/R&D from an eventual Phase II award leads to a completed product or tool, is it possible that this product or tool will be manufactured (e.g. production) on a wide scale basis?

☐ Yes      ☐ No

*In cases where there is a tie in the award selection process, participating SBIR agencies will give priority to projects that are manufacturing-related. (This “tie-breaker” specification allows the participating SBIR agencies to apply an additional preference without compromising the quality standards or established criteria of the program.)*

### 3. Statements

The offeror must respond to the following statements required by the Small Business Administration.

- **Duplicate Research Statement –**

The offeror and/or principal investigator (choose one: “has” or “has not”) submitted proposals/proposals for essentially equivalent work under other Federal program solicitations (choose one: “has” or “has not”) received other Federal awards for essentially equivalent work? (Identify proposals and/or awards in “Appendix C. Similar or Related Awards or Proposals.”)

- **Disclosure Permission Statement –**

Will the offeror permit the Government to disclose the title and technical abstract page of the proposed project, plus the name, address, and telephone number of the corporate official of the offeror’s firm, if the proposal does not result in an award, to concerns that may be interested in contacting you for further information?

☐ Yes      ☐ No

### 4. Legend for Proprietary Information

Information contained in unsuccessful proposals will remain the property of the offeror. The Government may, however, retain copies of all proposals. Public release of information in any proposal submitted will be subject to existing statutory and regulatory requirements.

If proprietary information provided by an offeror in a proposal constitutes a trade secret, proprietary commercial or financial information, confidential personal information, or data affecting national security, it will be treated in confidence to the extent permitted by law. This information must be clearly marked by the offeror with the term “confidential proprietary information” and the following legend must appear in this section of the proposal:

“These data shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed in whole or in part for any purpose other than evaluation of this proposal. If a contract is awarded to this offeror as a result of (or in connection with) the submission of these data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the contract and pursuant to applicable law. This restriction does not limit the Government’s right to use information contained in the data if it is obtained from another source without restriction. The data subject to this restriction are contained in pages (insert page number here) of this proposal.”

The use of any other legend is unacceptable to the Government and may constitute grounds for removing the proposal from further consideration without assuming any liability for inadvertent disclosure. The Government will limit dissemination of such information to/within official channels.

This proposal information **is not** counted toward the 15-page limit of the project narrative.

**X.2. APPENDICES TO THE DARPA SBIR PHASE I GAMES PROPOSAL****DARPA Appendix A: Research Involving Human Subjects****REQUIRED: INCLUDE IN THE TECHNICAL AND COST PROPOSALS**

No DARPA funding can be used towards human subject research until ALL approvals are granted; therefore, offerors must segregate the cost of performing the design and development of the prototype and the cost of performing the human subject testing into separate tasks in the cost proposal in order to avoid delay of the Phase I contract award.

In accordance with DoD policy, human subjects in research conducted or supported by DARPA shall be protected.

Human Use: All research involving human subjects, to include use of human biological specimens and human data, selected for funding must comply with the federal regulations for human subject protection. Further, research involving human subjects that is conducted or supported by the DoD must comply with 32 CFR 219, Protection of Human Subjects ([http://www.access.gpo.gov/nara/cfr/waisidx\\_07/32cfr219\\_07.html](http://www.access.gpo.gov/nara/cfr/waisidx_07/32cfr219_07.html)) and DoD Directive 3216.02, Protection of Human Subjects and Adherence to Ethical Standards in DoD-Supported Research (<http://www.dtic.mil/whs/directives/corres/pdf/321602p.pdf>).

Institutions awarded funding for research involving human subjects must provide documentation of a current Assurance of Compliance with Federal regulations for human subject protection, for example a Department of Health and Human Services, Office of Human Research Protection Federal Wide Assurance (<http://www.hhs.gov/ohrp>). All institutions engaged in human subject research, to include subcontractors, must also have a valid Assurance. In addition, personnel involved in human subjects research must provide documentation of completing appropriate training for the protection of human subjects.

For all proposed research that will involve human subjects in the first year or phase of the project, the institution must provide evidence of or a plan for review by an Institutional Review Board (IRB) upon final proposal submission to DARPA. The IRB conducting the review must be the IRB identified on the institution's Assurance. The protocol, separate from the proposal, must include a detailed description of the research plan, study population, risks and benefits of study participation, recruitment and consent process, data collection, and data analysis. Consult the designated IRB for guidance on writing the protocol. The informed consent document must comply with federal regulations (32 CFR 219.116). A valid Assurance along with evidence of appropriate training for all investigators should accompany the protocol for review by the IRB.

In addition to a local IRB approval, a headquarters-level human subjects regulatory review and approval is required for all research conducted or supported by the DoD. The Army, Navy, or Air Force office responsible for managing the award can provide guidance and information about their component's headquarters-level review process. Note that confirmation of a current Assurance and appropriate human subjects protection training is required before headquarters-level approval can be issued.

The amount of time required to complete the IRB review/approval process may vary depending on the complexity of the research and/or the level of risk to study participants. Ample time

should be allotted to complete the approval process. The IRB approval process can last between one to three months, followed by a DoD review that could last between three to six months.

The following clause will be included for all contract involving Human Subject Testing:  
DFARs 252.235-7004 Protection of Human Subjects.

This proposal information **is not** counted toward the 15-page limit of the project narrative.

**DARPA Appendix B: Similar or Closely Related Awards or Proposals**  
**REQUIRED: INCLUDE IN THE PDF**

If the small business concern has received ANY prior award(s) from any Federal agency *for similar or closely related research*, the offeror must provide the name of the awarding agency, the date of award, the funding agreement number, the amount, and the project title. As well, the offeror must describe the technical differences and reasons why the proposed new Phase I (and eventually Phase II) research is different from the research conducted under prior awards. This information shall be included in Appendix F.

If an offeror has submitted identical proposals containing a significant amount of essentially equivalent work, a statement must be included in Appendix F indicating: the name and address of agencies to which proposal(s) was/were submitted; the date of the proposal submission and date of award; the title, number and date of SBIR program solicitation under which proposal was/were submitted; the applicable research priority in the program solicitation for each SBIR proposal submitted or award received; the titles of research projects; the name and title of the principal investigator for each proposal submitted.

***This appendix must be included in the technical proposal file, but is not counted toward the 15-page limit of the project narrative.***

**DARPA Appendix C: Résumé Pages**

**REQUIRED: INCLUDE IN THE PDF**

For each individual who is listed and whose biographical summary is included in the 15-page narrative of the proposal, Appendix C must contain a 1-page résumé. *The résumé should include relevant educational qualifications, experience, and bibliographic information including pertinent peer-reviewed publications.*

**This appendix must be included in the technical proposal file, but is not counted toward the 15-page limit of the project narrative.**



**DARPA Appendix D: Letter of Agreement to Participate in the Phase I R/R&D**  
**REQUIRED: INCLUDE IN THE PDF**

In Appendix D, offerors should provide one letter of agreement from an education setting to participate in the Phase I pilot research. The letter must not exceed one (1) page in length.

***This appendix must be included in the technical proposal file, but is not counted toward the 15-page limit of the project narrative.***

**DARPA Appendix E: Documentation and Status of Phase II Awards from the Previous 7 Years**  
**REQUIRED AS APPROPRIATE:-INCLUDE IN THE PDF**

If the small business or the principal investigator (when at the small business concern or previously at a different firm) has received ANY prior Phase II awards from any Federal agency in the prior 7 fiscal years, the following information must be provided in Appendix E for each award:

- Name of the awarding agency and office
- Dates of award (start and finish)
- Contract/grant number
- Award amount
- Title of the project
- A short description of the product that was developed as a result of the award
- Details on the commercialization history and current status of the product, including:
  - details on any follow-on agreements or partnerships
  - the sales and marketing strategy for how the product is made available for purchase (e.g., website, trade magazines, licensing agreements)
  - the sales history and revenue generated from the product
  - data on the number of past and current users (e.g., schools, students)
- Details on peer-reviewed journal publications resulting from the R/R&D of the product

This proposal information **is not** counted toward the 15-page limit of the project narrative.

**DARPA Appendix F: Letters to Endorse the Proposed Game (Maximum of 3 Letters)**  
**OPTIONAL INCLUDE IN THE PDF**

In Appendix F, offerors may provide up to three (3) letters to endorse both the significance and the potential commercial application of the proposed game. Each letter must not exceed 1-page in length. Letters must adhere to the requirements as set forth in the solicitation.

**Notes:**

Strong letters of endorsement (1) state the endorser's qualifications (e.g., why does this individual/organization have expertise in the area of the proposed game?), (2) refer to the specifics of the proposal, and (3) may specify any future roles or involvement with the project down the line (e.g., Phase II or Phase III) should it be successful.

Letters endorsing the significance and potential commercial application of the proposed game may come from individual experts, associations, or organizations in the specific field of interest, future potential commercial partners or investors, or from school practitioners who would use or possibly purchase the product or tool if it were commercially available.

Strong letters of endorsement must be from organizations or individuals not affiliated with the project. Offerors should *not* include letters of endorsement from members of the project team, such as consultants or subcontractors, as the confirmation of involvement of members of the project team is to be provided in the Biographical Summary of Key Personnel and can be discussed in terms of how the project is managed. Offerors should *not* include letters from banks or personal lenders as a means to demonstrate the potential availability of Phase III financing.

***In accordance with section 3-209 of DOD 5500.7-R, Joint Ethics Regulation, letters from government personnel will NOT be considered during the evaluation process.***

This appendix must be included in the technical proposal file, but is not counted toward the 15-page limit of the project narrative.

**DARPA Appendix G. SBIR Cost Proposal**  
**REQUIRED, TO BE COMPLETED ONLINE**

**Cost Proposal.** Complete the cost proposal in the format shown in the Cost Breakdown Guidance, using the on-line cost proposal form on the DoD Electronic Submission Web site (the cost proposal will not be included in the proposal page limitation). Some items in the Cost Breakdown Guidance may not apply to the proposed project. If such is the case, there is no need to provide information on each and every item. What matters is that enough information be provided to understand how the proposer plans to use the requested funds if the contract is awarded.

- (1) List all key personnel by name as well as by number of hours dedicated to the project as direct labor.
- (2) Special tooling and test equipment and material cost may be included under Phase I and will be carefully reviewed relative to need and appropriateness for the work proposed. The purchase of special tooling and test equipment must, in the opinion of the Contracting Officer, be advantageous to the Government and should be related directly to the specific topic. These may include such items as innovative instrumentation and/or automatic test equipment. Title to property furnished by the Government or acquired with Government funds will be vested with the DARPA, unless it is determined that transfer of title to the contractor would be more cost effective than recovery of the equipment.
- (3) Cost for travel funds must be justified and related to the needs of the project.
- (4) Cost sharing is permitted for proposals under this solicitation; however, cost sharing is not required nor will it be an evaluation factor in the consideration of a Phase I proposal.
- (5) All subcontractor costs and consultant costs must be detailed at the same level as prime contractor costs in regards to labor, travel, equipment, etc. Provide detailed substantiation of subcontractor costs in the Explanatory Material section of the online cost proposal form. When a proposal is selected for award, the offeror should be prepared to submit further documentation to the DoD contracting officer to substantiate costs (e.g., a brief explanation of cost estimates for equipment, materials, and consultants or subcontractors). For more information about cost proposals and accounting standards, see the DCAA publication called "Information for Contractors" available at [www.dcaa.mil](http://www.dcaa.mil).

**DARPA APPENDIX H: Company Commercialization Report**  
**REQUIRED, TO BE COMPLETED ONLINE**  
[www.dodsbir.net/submission](http://www.dodsbir.net/submission)

A Company Commercialization Report MUST be prepared through the DoD Electronic Submission Web site (not submitted to the ED/IES) whether or not the offeror has previously received SBIR or STTR awards. This report shall only be prepared once and submitted with all your proposals for this solicitation.

- List the quantitative commercialization results of your firm's prior Phase II projects, including (sales revenue, additional investment, etc.), as well as other information relative to your firm's commercialization track record.
- All prior Phase II projects must be reported, regardless of whether the project has any commercialization results to date.
- The Web site will then compare these results to the historical averages for the DoD SBIR Program to calculate a Commercialization Achievement Index (CAI) value.
- Only firms with four or more Phase II projects that were awarded at least two years prior will receive a CAI score; otherwise the CAI is not applicable.
- Firms with a CAI at the 20th percentile or below may only receive half of the evaluation points available for the commercial potential criterion. Firms have the option to include no more than five pages of additional explanatory material relating to the firm's record of commercializing its prior SBIR or STTR projects, such as: commercialization successes (in government and/or private sector markets) that are not fully captured in the quantitative results (e.g. commercialization resulting from your firm's prior Phase I projects); any mitigating factors that could account for low commercialization; and recent changes in the firm's organization or personnel designed to increase the firm's commercialization success. A report showing that a firm has received no prior Phase II awards will not affect the firm's ability to obtain an SBIR award.

[DARPA Appendix I. Cover Sheet](#)  
**REQUIRED, TO BE COMPLETED ONLINE**  
[www.dodsbir.net/submission/SignIn.asp](http://www.dodsbir.net/submission/SignIn.asp)